

THE AUTOMOBILE

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No. 10

BOSTON WILL HAVE A GREAT SHOW



BOSTON, March 5.—Emphasizing the enduring foundations of a great industry, presented in an effective setting, and embracing all that is of and related to automobiling, the New England contribution to the show circuit will be opened to the expectant public Saturday evening. Motor boats too, will have a substantial place in the record-breaking affair.

Though this annual automobile and power boat show of the Boston Automobile Dealers' Association will be set in motion Saturday evening in Mechanics Building, this opening will not include the entire exhibition by any means. A year ago Mechanics Building, the largest exhibition structure in New England, was sufficient to house the exhibition, and it was expected that it would be of sufficient size this year. But some months ago, after practically every available foot of space in the big halls had been sold, it was found that all the manufacturers and dealers in automobiles and power boats could not be accommodated. The management then secured Symphony hall, the building which last year was used for an importers' show. This is the home of the famous Boston Symphony orchestra which gives weekly concerts on Saturday evenings. On account of the concert the hall cannot be used until Monday, and therefore that section of the show will not be opened until Monday.

In making preparations for the show the committee, consisting of George H. Lowe, E. A. Gilmore, and J. H. MacAlman, and the manager, Chester I. Campbell, have worked untiringly, and they promise that the exhibition not only will be up to the standard of former Boston exhibitions, but will eclipse everything else in this country. The idea of decorating for automobile shows originated and was first put in prac-

tice in this city. Other places have copied and elaborated upon this plan, and while in expense of decorations the Boston show may be eclipsed by the Madison Square show in New York, the show committee promises something novel in the way of decorations. The general scheme is for a pergola effect in the main halls of Mechanics Building, with uniform decorations, and signs in red and green. The exhibition spaces will all be carpeted, and will be separated from each other by draperies.

In Mechanics Building the street floors will be devoted exclusively to automobiles, and this year the displays in Exhibition hall will be of equal quality. To obtain additional space the management had removed the banks of seats in the balcony of Grand Hall, and a number of prominent manufacturers will exhibit there. In addition to this, the upper gallery in Grand hall, which has not been used heretofore, will be devoted to accessories. Other accessories exhibits will be in the balcony of Exhibition hall, and there will also be some cars in this section.

The basement is devoted primarily to motor boats, and practically all the leading builders in the country have engaged space and will show their product. Some of the space which was not required for the motor boats has been sold to automobile manufacturers and dealers, so that the automobile show will include a part of the motor boat department.

In Symphony hall the main floor has been divided into large spaces that have been taken by automobile concerns which put in their applications too late to secure space in Mechanics hall. There will be also exhibits of accessories in Symphony hall, which will be decorated after an entirely different scheme from the other building. A new feature of the show this year will be the introduction of band concerts afternoons and evenings in Mechanics Building.

For the accommodation of the throngs which are expected in Boston during the week of the show, the hotels and railroads are making special preparations. Excursions at special rates will be run to Boston from all parts of New England, and already many of the rooms in the leading hotels near the show buildings have been engaged by exhibitors and others coming from a distance. For the entertainment of the visiting automobilists, the Bay State Automobile Association has engaged special quarters in the Copley Square hotel, near Mechanics Building, and the Massachusetts Automobile Club, whose clubhouse on Boylston street, is very near the show buildings, is making special preparations to entertain the friends of members.

List of Exhibitors

1. Peerless Motor Car Co., 178 Columbus Ave., Boston.
2. A. R. Bangs—Franklin, Darracq—801 Boylston St., Boston.
3. Geo. J. Dunham—Royal Tourist—182 Columbus Ave., Boston.
4. Winton Motor Carriage Co., 1 Stanhope St., Boston.
5. White Sewing Machine Co., 320 Newbury St., Boston.
6. Reed-Underhill Co.—Knox, Stearns—223 Columbus Ave., Boston.
7. Moore & Smith—Autocar—38 Columbus Ave., Boston.

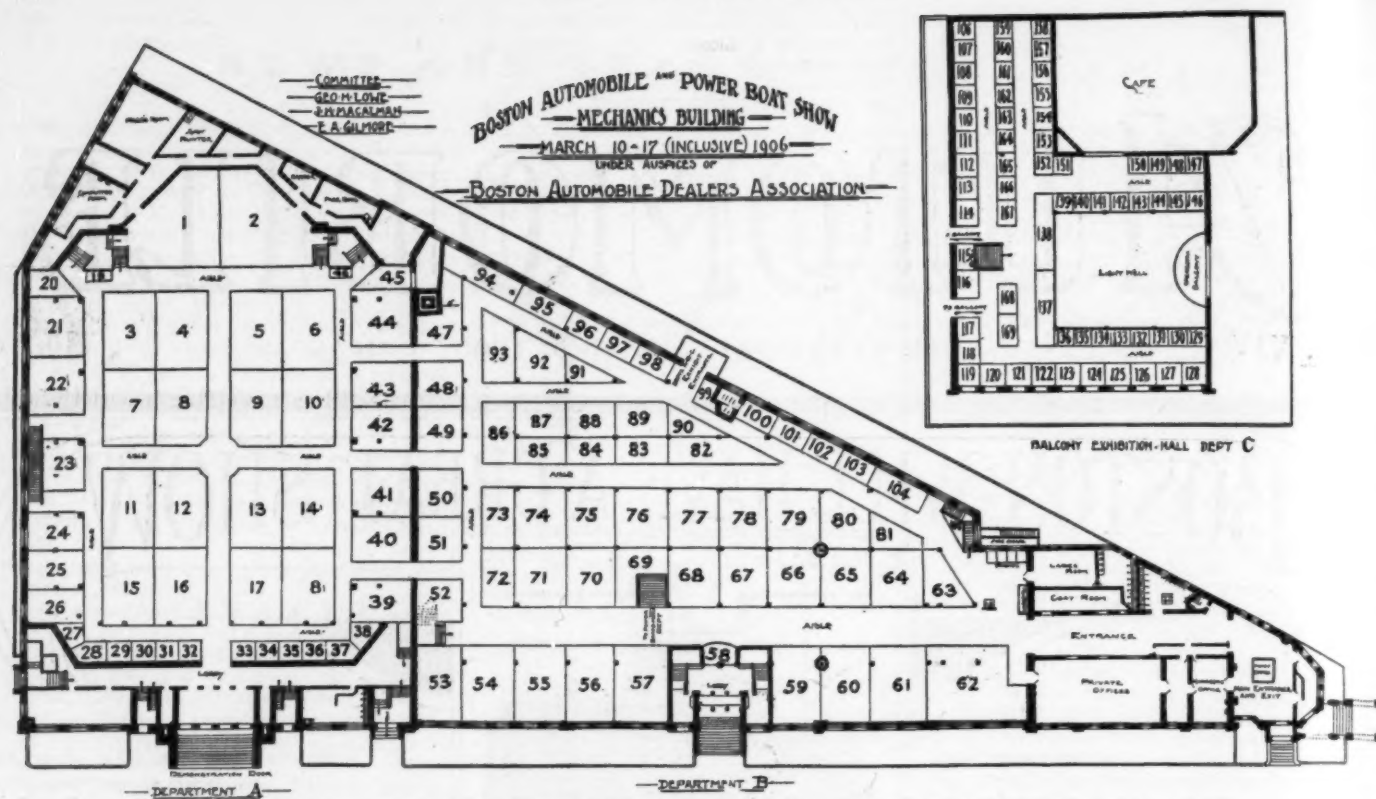
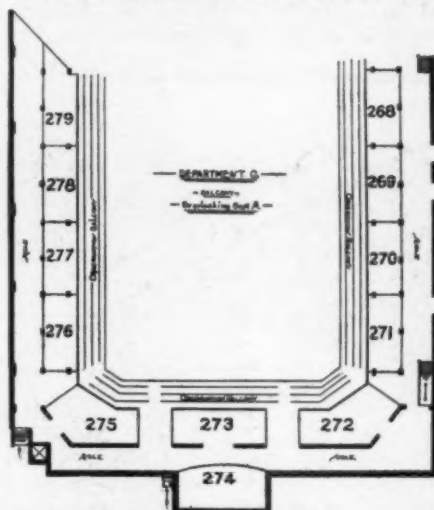


DIAGRAM OF BOSTON SHOW EXHIBITION SPACES ON MAIN FLOOR AND IN BALCONY OF MECHANICS BUILDING.

8. Napier Co. of America, 743 Boylston St., Boston.
9. White Sewing Machine Co., 320 Newbury St., Boston.
10. Reed-Underhill Co.—Knox, Stearns—222 Columbus Ave., Boston.
11. A. T. Fuller—Packard, Cadillac—Motor Mart, Columbus Ave., Boston.
12. Boston Automobile Exchange—Crawford, Columbus—173 Berkeley St., Boston.
13. Pope Mfg. Co.—Pope-Toledo, Pope-Hartford, Pope-Tribune, Pope-Waverley—223 Columbus Ave., Boston.
14. Randliff Motor Car Co.—Panhard, Stoddard-Dayton—Boston.
15. A. T. Fuller—Packard, Cadillac—Motor Mart, Columbus Ave., Boston.
16. K. A. Skinner—De Dion-Bouton—179 Clarendon St., Boston.
17. Pope Mfg. Co., 223 Columbus Ave., Boston.
18. J. W. Maguire Co.—Pierce, Baker—745 Boylston St., Boston.
19. "The Automobile," Flatiron Building, New York.
20. Benjamin Smith—special car—319 Columbus Ave., Boston.
21. Geo. M. Brown—Apperson—43 Columbus Ave., Boston.
22. Mills Kennedy Co.—Welch—733 Boylston St., Boston.
23. Boston Motor Co.—Acme, Merkel—43 Columbus Ave., Boston.
24. Jenkins & Sheldon—Mitchell—304 Columbus Ave., Boston.
25. E. T. Kimball Co.—Corbin—Motor Mart, Columbus Ave., Boston.
27. Motor Age, 309 Michigan Ave., Chicago.
28. Cycle and Automobile Trade Journal, 1213 Filbert St., Philadelphia.
29. Providence Tribune, Westminster St., Providence.
30. Motor Way, 21 Quincy St., Chicago.
31. Boston Globe, Washington St., Boston.
32. Boston Herald, Washington St., Boston.
33. Boston Transcript, Boston.
34. Providence Journal, Providence, R. I.
35. Motor World, 154 Nassau St., New York.
36. Boston American, Boston.
37. Banker and Tradesman, Franklin St., Boston.
38. Motor, 1789 Broadway, New York.
39. E. P. Blake & Co.—Jackson—Motor Mart, Boston.
- 40, 41. Ford Motor Car Co., 149 Columbus Ave., Boston.
- 42, 43. E. S. Breed—Haynes, Elmore—41 Columbus Ave., Boston.
- 44, 45. Butler Motor Car Co.—Cleveland, Richard-Brasier—Pierce—998 Boylston St., Boston.
46. Horseless Age, 9-15 Murray St., New York.
47. Sturtevant Mill Co., Harrison Square, Boston.
48. Jordan Marsh & Co., Boston.
49. S. F. Bowser & Co., 255 Atlantic Ave., Boston.
50. D. W. Dunn, 43 Federal St., Boston.
51. American Electric Novelty Mfg. Co., Hudson St., New York.
52. The Angler Co., 735 Boylston St., Boston.
53. Thos. B. Jeffery & Co., 145 Columbus Ave., Boston.
- 55, 56, 57. Harry Fosdick Co.—Fiat, Studebaker—53 Stanhope St., Boston.
- 58, 59, 60. Locomobile Co. of America, 15 Berkeley St., Boston.
- 61, 62. Columbia Motor Vehicle Co.—Columbia—94 Stanhope St., Boston.
- 63, 64, 65. Linscott Motor Co.—National, Reo—163 Columbus Ave., Boston.
- 66, 67, 68. Morrison-Tyler Motor Car Co.—Maxwell, Ranier, Marlon—Massachusetts Ave., Boston.
69. Essex Motor Car Co.—Essex steam car—60 State St., Boston.
- 70, 71. Wayne Automobile Co. of New England, 509 Tremont St., Boston.
- 72, 73. Gray & Davis, Amesbury, Mass.
74. Baker-Comerals Motor Car Co.—Premier—Massachusetts Ave., Boston.
75. Randliff Motor Car Co.—Frayer-Miller, Ardsley—Boston.
76. Hendee Mfg. Co., Springfield, Mass.
77. Berkshire Automobile Co., Pittsfield, Mass.
- 78, 79. C. S. Henshaw—Thomas—288 Columbus Ave., Boston.
- 80, 81. Linscott Motor Car Co.—National, Reo—163 Columbus Ave., Boston.
82. Autobed Co., 36 Columbus Ave., Boston.
83. Matheson Motor Car Co., Holyoke, Mass.
84. Adams-Sutton Motor Co.—Olds—16 Columbus Ave., Boston.
- 85, 86. Bulck Auto Agency, 541 Tremont St., Boston.
88. Adams-Sutton Motor Car Co., 16 Columbus Ave., Boston.
89. Matheson Motor Car Co., Holyoke, Mass.
90. National Carbon Co., Cleveland.
- 91, 92, 93. Waltham Mfg. Co., Waltham, Mass.
94. Reed-Underhill Co., 222 Columbus Ave., Boston.
- 95A. Veeder Mfg. Co., Hartford, Conn.
- 95B. Uncas Mfg. Co., 37 Shipping St., Norwich, Conn.
- 96, 97. Adams-Sutton Motor Co.—Olds commercial cars—Motor Mart, Boston.
98. Page Motor Vehicle Co., 127 Summer St., Providence.
99. Post & Lester Co., Hartford, Conn.
100. Moore-Smith & Co., 250 Devonshire St., Boston.
101. Alden Spear's Sons Co., 369 Atlantic Ave., Boston.
102. Peter Gray & Sons, 90 Union St., Boston.
- 103, 104. Boston Cycle & Sundry Co., 47 Hanover St., Boston.
105. Chas. E. Miller, 97 Reade St., New York.
- 105A. Harris Oil Co., Providence, R. I.
106. Albert Champion Co., 541 Tremont St., Boston.
107. Motor Car Specialty Co., Trenton, N. J.
- 110, 111. Atwood Mfg. Co., Amesbury, Mass.
112. A. W. Chesterton & Co., 64 India St., Boston.

113. Gilbert Mfg. Co., 76 Center St., New Haven, Conn.
 114. Jones Speedometer, 127 W. 32d St., New York.
 115. Whitney Mfg. Co., Hartford, Conn.
 116. Eco Mfg. Co., 43 Columbus Ave., Boston.
 117. E. B. Badger & Sons Co., 51 Pitts St., Boston.
 118. 119A. Gilbert & Baker Mfg. Co., 51 Union St., Boston.
 119B. 120 Firestone Tire & Rubber Co., Park Sq., Boston.
 121. Faulkner Mills Co., 4th & Spring Sts., New Bedford, Mass.
 122. C. F. Whitney, 43 Columbus Ave., Boston.
 123. Wm. Hjorth, Jamestown, N. Y.
 124. Tire and Motor, 150 Nassau St., New York.
 125. Iron Tire Pneumatic Wheel Co., 259 Fifth Ave., New York.
 126. Hicks Speed Indicator Co., 1384 Bedford Ave., Brooklyn, N. Y.
 127. Healy Leather Tire Co., 88 Gold St., New York.
 128. Hutchinson Electric Horn Co., 1 Madison Ave., New York.
 129. Columbia Road Auto Station, 610 Columbia Road, Dorchester, Mass.
 130. Geo. W. Knowlton Rubber Co., 88 Broad St., Boston.
 131. 132. Manhattan Storage Co., 42 Cortlandt St., New York.
 133. Boston Insurance Co., 137 Milk St., Boston.
 134. Electric Storage Battery Co., 60 State St., Boston.

135. Andrew J. Lloyd & Co., 315 Washington St., Boston.
 136. Crouch Motor Co., Stoneham, Mass.
 137. Samson Leather Tire Co., New York.



BALCONY SPACES IN MECHANICS BUILDING.

- 138A. Eastern Carbon Works, Carbon Place, Jersey City.
 138B. Conn Telephone & Electric Co., Meriden, Conn.

- 139 to 143. P. A. Murray, Washington St., Newton, Mass.
 144. Columbia Vehicle Tire Co., 97 Haverhill St., Boston.
 145. Baum's Castorine Co., 43 Columbus Ave., Boston.
 146. McGlehan Mfg. Co., New York.
 147. C. Cowles & Co., Walter and Chestnut Sts., New Haven, Conn.
 148. A. N. Greenwood Oil Co., 71 High St., Boston.
 149. Randall-Faichney Co., Sudbury Bldg., Boston.
 150. E. J. Loring, 76 Highland Ave., Somerville, Mass.
 151. Hillman Plating Co., 38 Chardon St., Boston.
 152. Anderson Spark Plug Co., 701 Colonial Bldg., Boston.
 153. Iron Clad Mfg. Co., Brooklyn, N. Y.
 154. Tokheim Mfg. Co., 204 Varet St., Brooklyn, N. Y.
 155. Rands Mfg. Co., Detroit, Mich.
 156. Boston Auto Gauge, 613 Old South Bldg., Boston.
 157. Williams Mfg. Co., 309 Washington St., Boston.
 158. Nelson Whitney, 651 Old South Bldg., Boston.
 160. Vacuum Oil Co., 101 Milk St., Boston.
 161A. Dover Stamping Mfg. Co., 385 Putnam St., Cambridge, Mass.
 161B. Eagle Oil & Supply Co., 104 Broad St., Boston.

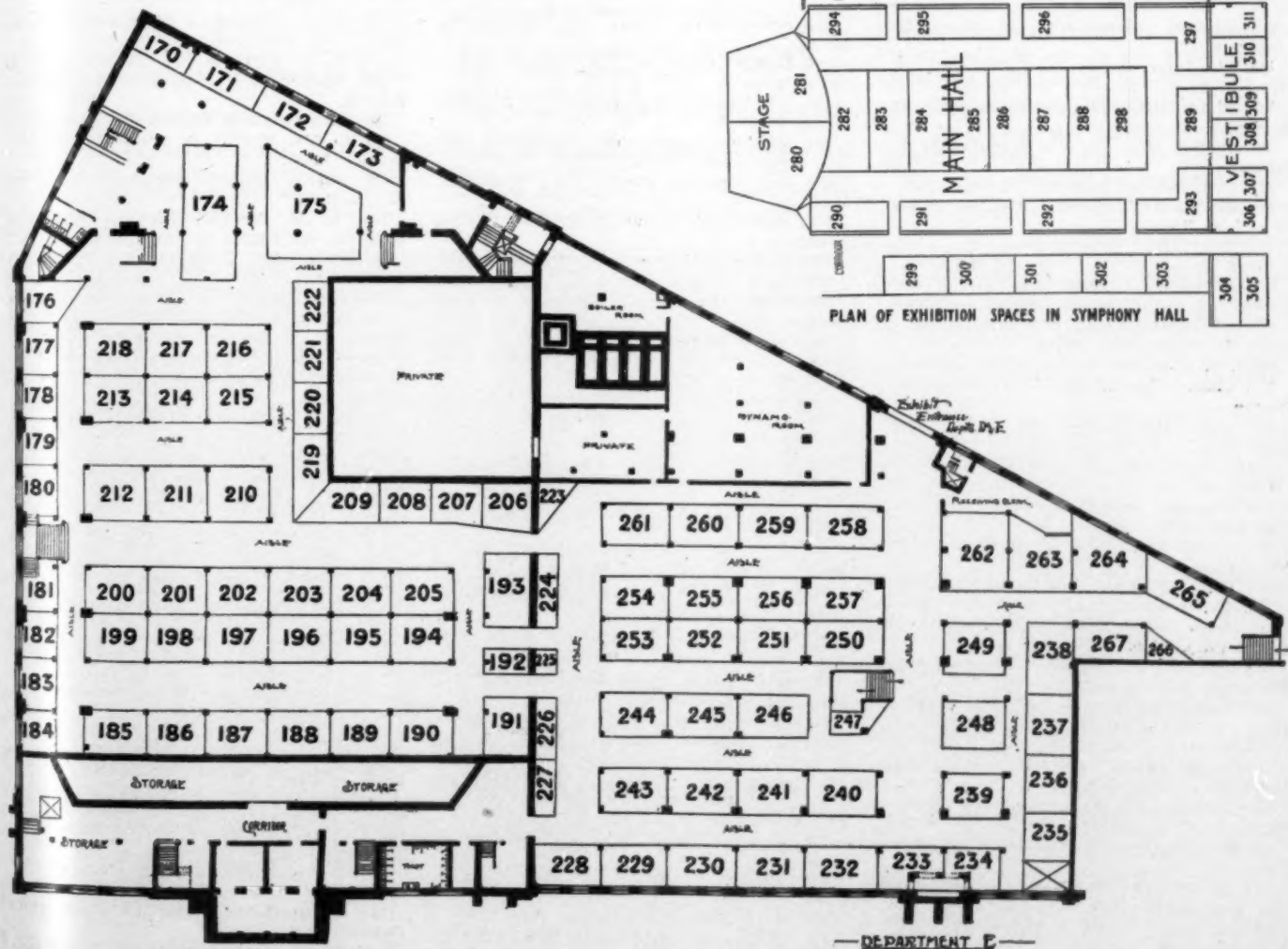
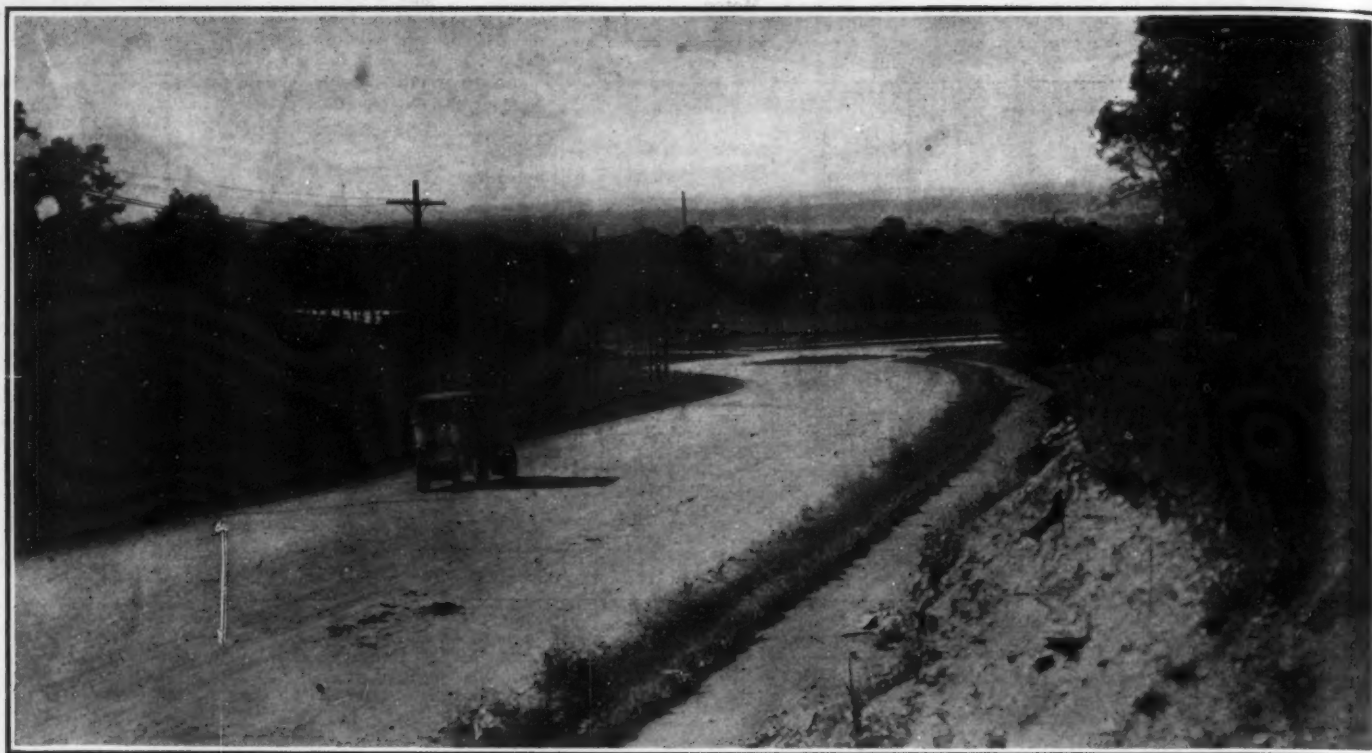


DIAGRAM OF BOSTON SHOW EXHIBITION SPACES IN SYMPHONY HALL AND IN BASEMENT OF MECHANICS BUILDING.



BOSTON'S PICTURESQUE AND NUMEROUS SUBURBS POSSESS MILES OF ROADS TO ENCOURAGE AUTOMOBILING.

162. Trident Wheel Co., 84 State St., Boston.
 163, 164. Leon Rubay, 140 W. 38th St., New York.
 165. Globe Optical Co., 395 Washington St., Boston.
 166. Rollins Mfg. Co., 273 Washington St., Boston.
 167. Consolidated Mfg. Co., Toledo, O.
 168. Hartford Suspension Co., 67 Vestry St., New York.
 169. Rose Mfg. Co., 910 Arch St., Philadelphia, Pa.
 170, 175. The Atlantic Co. — launches, dories and yacht tenders—Amesbury, Mass.
 176A. Perkins Launch & Motor Co., 81 E. Main St., Gloucester, Mass.
 176B. C. H. Saunders, Motor Mart, Boston.
 177. Chas. H. Coops, 3 Appleton St., Boston.
 178. Pantasote Leather Co., 11 Broadway, New York.
 179A. Power Boat News, New York.
 179B. The Rudder, New York.
 180. Camden Anchor-Rockland Mch. Co., Rockland, Me.
 181. Thos. Prosser & Son, 15 Gold St., New York.
 182. Chas. P. McClellan, Fall River, Mass.
 183. Fuller & Sullivan, 19 Elliot St., Boston.
 184. Main Woods & Main Woodsman Pub. Co., Phillips, Me.
 185. Joseph B. Emerson, Auburndale, Mass.
 186, 187. Sprague Umbrella Co., Norwalk, Ohio.
 188A. Motor Boat, New York.
 188B. Bay State Hardware Co., 1321 Washington St., Boston.
 189, 190. E. Teel & Co., Medford, Mass.
 191. J. N. Leach—G. H. Proctor Supply Co.—Melrose Automobile Co.—Motor Mart, Boston.
 192. Wm. Cramp & Son Ship & Eng. Bldg. Co., Philadelphia, Pa.
 193. Buffalo Gasoline Motor Co., P. O. Sq. Bldg., Boston.
 194. E. Gerry Emmons Corp., 33 Haverhill St., Boston.
 195. Knox Motor Truck Co., Springfield, Mass.
 196. Briggs & Wade, 76 Sagamore St., Lynn, Mass.
 197, 198. Vehicle Equipment Co., Long Island City, N. Y.
 199. Mitchell Punctureless Pneumatic Tire Co., Swampscott, Mass.
 200. Hall Gasoline Engine Co., Wollaston, Mass.
 201. McFarland Foundry & Machine Works, Trenton, N. J.
 202. Butler Motor Car Co.—“Rapid” trucks—998 Boylston street, Boston.
 203. Pope Mfg. Co., 223 Columbus avenue, Boston.
 204. Knox Motor Truck Co., Springfield, Mass.
 205. E. Gerry Emmons Corp., 33 Haverhill street, Boston.
 207. W. H. Mullens Co., Salem, O.
 208. John L. Snow, 178 Columbus avenue, Boston.
 209. Geo. A. Gulliford, 303 Eastern avenue, Lynn, Mass.
 210 to 212. A. S. Morss Co., 210 Commercial St., Boston.
 213. Waltham Boat & Canoe Co., Waltham, Mass.
 214. Chas. Holmes Machine Co., 289 Marginal St., E. Boston, Mass.
 215. Gearless Transmission Co., Glens Falls, N. Y.
 216, 217. C. H. Saunders—Moline—Motor Mart, Boston, Mass.
 218. A. J. Coburn—Upton Constant Electric—43 Columbus Ave., Boston.
 219, 220. Chandler & Farquhar, 36 Federal St., Boston.
 221. Norton Emery Wheel Co., 237 Chandler St., Worcester, Mass.
 222. Coates Clipper Mfg. Co., Worcester, Mass.
 223. Hasbrouck Motor Co., New London, Conn.
 224. V. J. Emery, Wollaston, Mass.
 225. Monitor Electric Speed Recorder Co., Cambridge, Mass.
 226. Palmer Bros., 85 Union St., Boston.
 227. A. W. Toppan, 9 Haverhill St., Boston.
 228. D. M. Tuttle & Co., Canastota, N. Y.
 229. Walter J. Forbes, 220 Congress St., Boston.
 230. Lamb Boat & Engine Co., Clinton, Ia.
 231 to 234. Murray & Tregurtha Co., So. Boston, Mass.
 235. Boston Gasoline Engine Co., 88 Broad St., Boston.
 236. R. M. Kimball—Harvard Marine & Auto Co.—25 Elliott St., Cambridge, Mass.
 237, 238. Baker Yacht Basin, Inc., Quincy, Mass.
 239. J. V. Rice, Jr., Co., Bordentown, N. J.
 240 to 243. A. W. Toppan—standard Autos. Toppan Mfg. Co.—9 Haverhill St., Boston.
 240 to 243. A. W. Toppan—Standard Automobiles, Toppan Mfg. Co.—9 Haverhill St., Boston.
 244. Detroit Boat Co., Detroit, Mich.
 245. Michigan Steel Boat Co., Detroit, Mich.
 246. Detroit Engine Works, Detroit, Mich.
 247. L. E. Bova, South Station, Boston.
 248. Hub Automobile Exchange, 191 Freeport St., Dorchester, Mass.
 249. Swasey, Raymond & Page, 621 Colonial Bldg., Boston.
 250. Walter Coleman Sons, 300 Water St., Providence, R. I.
 251. Fairbanks Co., 42 Pearl St., Boston.
 252. Brown-Talbot Mch. Co., 438 Old South Bld., Boston.
 253. Cooley Mfg. Co., 146 Franklin St., Boston.
 254. Goodwin Bros., Riverside Ave., Medford, Mass.
 255. Brown-Talbot Mch. Co., 438 Old South Bldg., Boston.
 256. Olds Gasoline Engine Works, 69 Washington St., N. Boston.
 257. E. F. Hodgson, Dover, Mass.
 258. Arthur F. Binney, 70 Kilby St., Boston.
 260. Essex Engine Co., Lynn, Mass.
 261. Carlyle-Johnson Mch. Co., Hartford, Conn.
 262. Springfield Moulding Works, Springfield, Mass.

263. Automatic Mach. Co., Bridgeport, Conn.
 264. A. E. Wells & Sons, 53 Puritan Road, Swampscott, Mass.
 265. F. E. Davis, 280 Devonshire St., Boston.
 266. Richardson Engineering Co., 36 Pearl St., Hartford, Conn.
 267. Norfolk Motor Co., Wallaston, Mass. Aisle. Hollis Burgess, 10 Tremont St., Boston.
 268. Louis S. Ross, Craft St., Newtonville, Mass.
 268B. Sage Trunk Depot, 81 Summer St., Boston.
 269A. H. P. Coleman—Duryea—66 Stanhope St., Boston.
 269B. Old Colony Light Co., 241 Boylston St., Boston.
 270A. R. E. Dietz & Co., 60 Laight St., New York.
 270B. Boston Tire & Rubber Co., 184 Friend St., Boston.
 271. Corwin Mfg. Co.—Gasaulec—Peabody, Mass.
 272. F. E. Wing & Co.—Marmon—Motor Mart, Boston.
 273. Imperial Auto Co.—Aerocar, Dolson, St. Louis, Argus, Martini—1024 Boylston St., Boston.
 274. Imperial Auto Car, 1024 Boylston St., Boston, Mass.
 275. St. Louis Motor Car Co., Peoria, Ill.
 276. Grout Bros. Automobile Co., Orange, Mass.
 277A. American Motor Car Co., 70 Kilby St., Boston.
 277B. Gabriel Horn Mfg. Co., Cleveland.
 278A. The Duquesne Co., 112 E. 75th St., New York.
 278B. Way Muffler Co., Arch St., Philadelphia.
 Aisle. Jacobs Mfg. Co., 172 Pearl St., Hartford, Conn.
 279. Babcock Electric Carriage Co., Buffalo.

SYMPHONY HALL.

280. Stanley Motor Car Co., Newton, Mass.
 281. Stanley Motor Car Co., Newton, Mass.
 282. C. H. Blomstrom Motor Co., Detroit.

283. Shawmut Motor Co., 901 Boylston St., Boston.
 284. H. C. Stratton & Co.—American Mercedes—43 Columbus Ave., Boston.
 285. Johnson Service Co., Milwaukee.
 286. Mors Automobile Co. (A. L. Bennett) 541 Tremont St., Boston.
 287. Mercedes Import Co., Times Bldg., New York.
 288, 289. English Daimler Co.—C. G. V., Decauville—Times Bldg., New York.
 290, 291. Northern Automobile Agency, Motor Mart, Boston.
 292A. Pennsylvania Rubber Co., 167 Oliver St., Boston.
 292B. Photo Era Publishing Co., 353 Boylston St., Boston.
 293A. Salisbury Tire Co., Owosso, Mich.
 293B. Voorhees Rubber Co., 18 Bostwick Ave., Jersey City, N. J.
 294. Crown Motor Car Co.—Glide—Motor Mart, Boston.
 295. Eisenhuth Horseless Vehicle Co.—Compound—Middletown, Conn.
 296. Iver Johnson Sporting Goods Co., Boston.
 297. Iroquois Motor Car Co., Seneca Falls, N. Y.
 298. D. P. Nichols & Co.—Edw. S. Clark. Clark Steam Car—116 W. Brookline St., Boston.
 299A. A. H. Fuller, 60 Main St., Brockton, Mass.
 299B. H. E. Whiting, 11 Ware St., Cambridge, Mass.
 300B. Underhay Oil Co., 73 Batterymarch St., Boston.
 301A. H. J. Russell, 32 Exchange St., Worcester, Mass.
 301B. Electric Rubber Mfg. Co., Rutherford, N. J.
 302A. J. H. Bullard, Springfield, Mass.
 302B. Wells Light Mfg. Co., 44 Washington St., New York.
 303A. Wm. C. Robinson & Son Co., 141 Milk St., Boston.
 303B. Aetna Life Insurance Co., Kilby and Water Sts., Boston.
 304, 305. L. E. Bova. South Station, Boston.
 306A. Commonwealth Magazine, Boston.

- 306B. L. C. Chase & Co., 129 Washington St., Boston.
 307A. Fischer & Kuehner, Providence, R. I.
 307B. American Metal Polish Co., 89 Winslow St., Somerville, Mass.
 308. Detroit Auto Vehicle Co., Detroit.
 309A. Kilgore Auto, Air Cushion Co., 46 Columbus Ave., Boston.
 309B. Dodge Lubricator Co., Columbus Ave., Boston.
 310. Equitable Distributing Co., 24 Columbus Ave., Boston.
 311. Jos. B. McMillen, Elliot City, Md.
 314. Dow Portable Electric Co., Braintree, Mass.
 315. Harrison Wagon Co., Grand Rapids, Mich.
 316. Heinze Electric Co.—New England Motor Co.—Lowell, Mass.
 317A. E. B. Belcher, 26 Green St., Malden, Mass.
 317B. Oil Tempering Spring Co., 152 Main St., Chicopee Falls, Mass.
 318. Auto Goods Co., 425 Butler's Ech., Providence, R. I.
 Entrance, O'Brien & Russell, 108 Water St., Boston.

BOSTON'S SHOW HISTORY.

Automobiles Were Exhibited in Mechanics Building in 1898.

When was the first automobile show in Boston? If one out of fifty of the auto enthusiasts who crowd into the Boston show next week can answer this question off-hand, it will be a miracle. Of course, almost everybody who has followed the "game" will be apt to say that the first show that was a show was in 1903, when the Boston Automobile Dealers' Association gave their first exhibition with such glowing success.

But that wouldn't be the truth. The facts are that the first real automobile show



AS THE GREAT BOSTON SHOW IN THE MECHANICS BUILDING PROSPEROUSLY LOOKED A YEAR AGO.

in Boston was a part of another show—the Mechanics' Fair—which has been run every year or two by the Massachusetts Charitable Mechanics' Association for several decades. That association took special cognizance of the growing interest in automobiles as early as 1898, and in November of that year, at its regular exhibition in Mechanics Building—a general exhibition comprising all sorts of industrial machinery—gave the basement of the building to automobiles. The old Whitney steam carriage, the Stanley steamer, and one or two specials were the principal vehicles exhibited; but the gasoline type was represented by the old Duryea car, which at that time had headquarters in Springfield, Mass. Yet it was not in the exhibition itself that this display attracted attention so much as in a competition arranged to take place at Charles River Bicycle Park, Cambridge, to show what the "horseless carriages" were good for in actual service.

At subsequent industrial shows in Mechanics Building there was an attempt made to give some space to automobiles, but none of them attracted much attention and in 1902, when a club had been started in Boston and there were a number of regular dealers in the city, all interests combined to make the automobile end of the Mechanics' Fair the big thing of the exposition. Meantime, however, in 1901, a number of professional show promoters dropped down on Boston with a proposal for an automobile show all by itself. They interested all the automobile owners and dealers in the scheme, and eventually held their exhibition in the Mechanics Building, March 4 to 9, 1901; but they made the unfortunate mistake of attempting to reap a harvest greater than their sowing, and the cost of space was so excessive that many dealers could not stand it, and not only was the show rather scantily representative of the industry as it stood at that time, but it was unable to win popular favor as expressed in large attendance.

The automobile show attempted in conjunction with the Mechanics' Fair in the following year was undertaken partly to overcome the wet-glove effect of this first all-auto show, and the ill-success of the other contributed to the general success of the 1902 exhibition. Clubmen and dealers combined with cars and influence, and not only for the exhibition itself, but also for the street parade conducted in connection with it, was there ample newspaper mention and notable interest among the general public. That 1902 show made it evident to the public that three types of cars were in existence—steam, gasoline, and electric—and that show did more than is generally conceded to pave the way for the success of the subsequent Boston exhibitions.

It was in the following winter of 1902-03 that the automobilists themselves began to plan for a show of their own, conducted by them and for them. The club coterie,



BOSTON'S FASHIONABLE TEMPLE OF MUSIC LOANED FOR INDUSTRIAL PURPOSES.

organized what was known as the New England Automobile Association, and in the name of this association obtained an option on the main hall of Mechanics' Building for the same week in February, 1903, as that for which the secondary hall of the building was to be given over to the dog show of the New England Kennel Club. This forestalled the dealers, several of whom thereupon quietly formed the Boston Automobile Dealers' Association and secured an option on the beautiful new Symphony Hall for the week of March 16 to 21 and set about getting dealers and manufacturers to hold off exhibiting until their show took place.

As a result, there were two big shows in Boston early in 1903, but the club show, being at a disadvantage from having enthusiasm rather than a pull with the manufacturers, turned its show largely into a demonstration of the marvelous ease and delicacy with which automobiles could be handled. The cutting of figure "8" on a polished floor, see-saw exhibitions, and the circling of the hall with carloads of would-be buyers occupied most of the time and proved attractive to crowds of spectators, but the show as a whole was not a financial success.

It served to advertise the dealers' show, however, and when this show opened in March it showed a halfull of handsome cars arranged in luxuriously carpeted and tastefully decorated spaces, virtually after the approved manner of the latest up-to-date exhibition theories. That was a show that was a show, sure enough! It was a success from the standpoint of sales, or popularity; and as for gate receipts, they demonstrated the money value of a show franchise so completely that it was only by a narrow margin that they failed to start a split in the ranks of the dealers, because a few and not all the members of the asso-

ciation had profited from the control of the exhibition hall.

Another show was given by the dealers' association in March, 1904, with even greater success than before. Not only did the manufacturers attend very generally and back up the local agents with special exhibits, but the general public up through New England seized the opportunity to come down and have a look at the newest cars. The Boston dealers reaped the harvest that had been slowly ripening through several years of desultory promotion by all factions of automobile interests.

So big was the 1904 show, and so closely did it crowd the limited space in Symphony Hall, that the show was no sooner over than the dealers secured the option on Mechanics Building for the corresponding time in 1905. When that time came round, their judgment was vindicated by a show which for size and importance and field of influence was ranked almost in the same class with the big shows of Chicago and New York. It was freely admitted that of the entire aggregation of shows given in this country in 1904 and 1905, if not in 1903, the Boston shows were second only to those in New York.

The estimate of those years appears likely to be fully borne out by the show now about to open.

NEW ENGLAND AUTOMOBILING Its Growth Rapid and Good Roads Assisted in the Progress.

The growth of automobiling in New England has been rapid. Only a few years ago anyone at all interested in the subject could name from memory the owners of cars in this part of the country. There was Fiske Warren, the pioneer, whose electric brake gave Bostonians about their first glimpse of a horseless carriage; the Stanleys

with their steamers; George E. McQuesten, who was about the first to get together a "stable" of automobiles; J. Ransom Bridge, Royal R. Sheldon, George H. Morrill, Jr., and a few others, living mostly in Boston and vicinity. At the present time the records of the Massachusetts Highway Commission show that there are something like 13,000 cars registered in this state alone, while in Maine, New Hampshire, Vermont, Rhode Island and Connecticut there are thousands of other machines, and there is hardly a town or hamlet in the Berkshires, the White, or the Green mountains that is not familiar with the automobile.

This rapid growth is attributable, perhaps primarily, to the fact that there is much wealth in New England, and that the capitalists of this part of the country, though conservative to a degree, have always been noted for their Yankee sense for seeing developments a long way ahead. But there is no doubt that, admitting the power to purchase automobiles, good roads have played as important a part in the development of automobiling as any other element. New England roads are not all first class by any means, but the main arteries of travel, through long and constant use and the agitation of the bicyclists, were ready for the automobiles when they arrived, and offered the best opportunities for touring to be found in America. And the automobilists were quick to take advantage of these conditions, and tours between New York and Boston were among the first long trips that were undertaken by the early drivers.

In the trade progress has been commensurate with the adoption of the automobile as a pleasure vehicle. Nearly every Bostonian remembers when the automobile trade was confined to two or three stores on lower Boylston street, where the Locomobile steamers and those of the Mobile Company of America were sold and the old

Lewis garage on Stanhope street, the first garage in Boston. This accommodated something like a half dozen machines. Those were the days when the "Red Devils" of the Newport summer residents were the wonder and the fear of the country inhabitants, and when the arrival of one of these machines in Boston occasioned as much interest as would be shown to-day by the appearance of an airship.

Harry Fosdick was early identified with the steam car and managed one of the Boylston street stores. J. H. MacAlman was later associated with the Locomobile store, and as he is still with the Locomobile company, he is one of the veterans of the trade who have not changed their affiliations. George H. Lowe, long with the White company, is another veteran. In foreign cars Kenneth A. Skinner, president of the Boston Automobile Dealers' Association, was the pioneer, and his little De Dion runabouts were about the first foreign machines that were seen on the streets of Boston.

With the development of the gasoline car the trade shifted from lower Boylston street and usurped the old bicycle section on Columbus avenue. Gradually the bicycles were driven out, and Columbus avenue between Park square and Clarendon street became the home of the automobile. One of the first independent salesrooms and garages to be built was that of the Winton company on Berkeley and Stanhope streets. There was a long period in which the agencies and branches confined themselves to stores, but within the past two years there has been marked expansion, and now there are plenty of concerns which occupy entire buildings. At the same time the territory covered by the automobile trade has extended and now the district extends from the Tremont garage on the east to the White building on the west and from the Motor

Mart on the north to Massachusetts avenue on the south. Along with this expansion has gone the development of branches in the smaller cities of New England. The size of this development is indicated by the very recent Portland show.

In Boston the most recent indication of progress has been the opening of the Motor Mart in Park square, a fire-proof structure of steel and concrete occupying an entire block. Under one roof are about a score of stores, most of which are already occupied by dealers, and a three-story garage with 60,000 feet of floor space, capable of accommodating more than 300 cars, automobile elevators, turntables, chauffeurs' quarters and every modern equipment for a garage. The opening of this structure devoted exclusively to automobiles, while it has resulted in the shifting of a number of concerns, has made little impression on the district, as new concerns have come forward rapidly enough to fill up the stores as fast as they are vacated.

In the matter of legislation Massachusetts has been a leader from the very first. Up to 1902 the park rules which required numbers were considered sufficient. In 1903 the general statute for registration of cars with the State Highway Commission and the licensing of chauffeurs, together with the establishment of speed limits of fifteen miles in the country and ten miles in crowded sections, was passed and has since been the basis of the control of automobiles, although it has been amended in details each succeeding year, there being several propositions before the present Legislature looking toward changes in the law. This Massachusetts statute, together with the law of New York, has been the basis upon which have been constructed to a great degree the automobile laws of other states.

As to the future everything is conducive to an optimistic view.



LIGHTS AND SHADOWS OF OLD SALEM—A TYPICAL BAY STATE TOWN, WHERE WITCHES ONCE WERE BURNED.

TENDENCIES IN CAR DETAILS AT SALON.—IV.

By RENE M. PETARD.

(Continued from page 432, issue of February 22.)

METAL-TO-METAL CLUTCHES.

PARIS, Feb. 24.—All the drawbacks of the leather-faced cone clutch, already mentioned, have led the designers to look for different means of solving the problem. In the machinery trade, clutches of various types, based upon the friction of metal against metal, have long been used, and the success with which they have been able to perform their work induced automobile designers to try them for automobiles. Among the first clutches adopted for the purpose in France we find the Julien, which is still extensively used in French factories on machine tools and for similar purposes. In this clutch, which we class with the metal-to-metal types, simply on account of its general lines of design, leather is still resorted to to increase the friction coefficient between the driven and the driving members. It consists of an internal expanding spring steel band working inside a drum, and lined with leather on its outer face. The expansion of this band, in order to produce the friction, is obtained by means of an almost radial arm, carrying a roller at its inner end, and pivoted upon a plate which forms part of the driven member. A cone which slides longitudinally upon the central shaft causes the lever to rock on its fulcrum and push the free end of the band away from the other, which is also fulcrumed upon the driven member's plate. The drum naturally forms the driving member.

This clutch presented a number of advantages over the cone type, but the main disadvantage of the latter—the presence of leather—subsisted, so that further improvements were required, which gave rise to the clutches exhibited in a perfected state this year. For the sake of clearness we shall divide the study of this subject into several headings, according to the main characteristics of the apparatus discussed. These headings will be:

- (1) The disk clutch.
- (2) The expanding segments clutch.
- (3) The spiral or coil clutch.
- (4) The band clutch.
- (5) The expanding pads or blocks clutch.
- (6) The hydraulic clutch, which, although a metallic construction, does not rely upon metallic friction for its work, and can consequently be classed with metal clutches only by stretching a good deal the meaning of the word.

The disk clutch is now extensively used in Europe as well as in America, and certainly deserves to be. Among its present users we find Clement-Bayard, Clement-Gladiator, De Dion, Aries, Panhard, Men-

delssohn, in France; Rapid, Italia, Bianchi, and Fiat, in Italy; Hele Shaw, the originator, in England. The latter, although not exhibiting cars, had a very comprehensive show of his clutches and parts at the Salon.

The number of plates used is generally very great, from forty to sixty, and their diameter is small, the whole clutch being generally contained entirely inside the flywheel hub so as to permit the use of fan blades between the clutch and the flywheel rim. The mounting of the plates so as to make them alternatively driven and driving, is similar for all types, except, perhaps, in minor details, slots being cut on the inner or the outer edge of the disks, as the case requires, which slots fit keys on the driven and driving drum and arbor. These clutches are intended to work in oil.

The plates used on the clutches made by the concerns mentioned are flat when

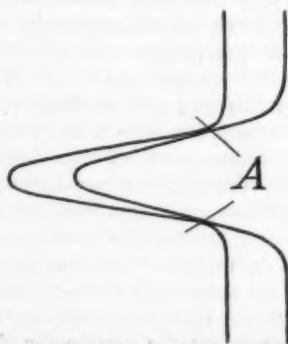


FIG. 1.—SKETCH OF CROSS SECTION OF HELE SHAW CLUTCH DISKS.

pressed in contact by the spring or springs, but they are generally made to be slightly convex and springy when free, so that upon the spring being released, the natural elasticity of the plates causes them to resume their convex shape and thus free themselves from mutual contact on their entire surface. This for two reasons: the first is to avoid the slight "dragging" which might result of a continuous contact, even if no spring pressure were applied; the second is to permit the access of oil to the frictional surfaces as soon as the plates are partly or entirely relieved of the pressure. Facing plate clutches with leather is considered by French makers to be merely a makeshift to cause a plate clutch to work as near as possible in the way it should have worked without leather, if it had been so designed.

In the Hele Shaw type, as made by the inventor himself, the plates are not flat, but on the contrary carry deep concentric corrugations which under the pressure of the spring enter each other, but by their

very shape are stopped from coming into contact on their entire surface, the points of contact forming two circular lines, as shown at A in Fig. 1. The idea is to obtain (together with a sort of wedge action which gives a more powerful driving contact) a large oil capacity outside of the line of contact which, by reason of the great pressure it has to stand per unit of surface, runs dry when the clutch is driving positively, and becomes lubricated as soon as slip is permitted by the releasing of the pressure. The Fiat intends to use this type of plate, according to public rumor, while the Scotch house of Argyle has ordered from Prof. Hele Shaw enough clutches for the entire 1906 output. This is said to be the largest order ever placed for a special type of clutch, the contract calling for more than a thousand. The De Dion clutch, which also belongs to this class but only possesses three plates, or rather two plates and a faced part of the flywheel, has been described fully in another previous report, and consequently does not require more than a passing mention here. It might be noted, however, that it presents a great similarity in principle to that employed in the American Austin car.

Expanding segment clutches practically amount to mechanisms similar to those used for the modern expanding internal brakes. These clutches can be found on the Rochet-Schneider, Martini, La Buire, Desgouttes, Pilain, Motobloc, Gillet-Forest. They only vary by the means used to produce the expansion of the segment, the end aimed at being in all cases to transform the axial pressure of the spring into an expanding circumferential pressure. This is generally done by using a wedged- or a coned-shaped sliding member, acting upon suitable levers or toggles. In some cases, however, the action is by means of quick pitch screws, all the clutches of this latter type being indebted for their principle to the Bonnafous clutch, which was a pioneer together with the before-mentioned Julien. In this clutch the ends of the expanding segment (Fig. 2) carry short links connected to a right-and-left-hand thread screw placed parallel to a diameter of the driving drum's circle. A small arm perpendicular to this screw and fulcrumed in the same bearing extends toward the center of the clutch and close to the centered shaft by a ball forming part of a ball-and-socket joint connected to the clutch's sliding member. When the spring pushes this sliding member forward the arm's end follows and turns a screw a fraction of a revolution; this, together with the linkage, produces

the expansion of the clutch. In some of the modern applications of this clutch to automobiles two screws and arms and two half segments are used. This is the case with Pilain and Gillet-Forest. These clutches also work in oil, but they have the great drawback of not permitting very well a symmetrical construction. This leads to lack of balance and consequent vibration, unless extra weight is added to make up for it in the form of counterweights.

The spiral or coil clutch is based upon the well-known Lindsay principle, and, although it is not very extensively used in European automobile constructions, the reputation of the makers who use it, namely, Mercedes and Pipe, make it a noteworthy system. No proper study can be made of it other than a mere description of the production of the two named makers, but this is too well known to be within our subject.

The band clutch was only represented by one type at the Salon. It is used by Mors, being a new departure for that concern, which previously used the cone and leather, and will use the band for all the 1906 productions, this system having given the highest satisfaction on their 1905 racing car. Users of the former gear-driven model of the Orient buckboard will find in the high-speed clutch of their machine an illustration of the principle of the Mors clutch, if they only can forget that there is leather on it.

In the Mors clutch (Fig. 3) the action is as follows: A flat steel plate *P* in the form of a beam carries one end of each of the two half steel bands *B* which surround the flywheel drum *D*. This plate is centered in the flywheel and forms the driven member of the clutch. It also carries the fulcrums *f* of two levers *L*, the shape of which is exaggerated greatly in irregularity in the diagram, which carry at their outer ends the free ends of the steel bands. A cone *C* slides on the clutch shaft under the pressure of the clutch spring, and by its action

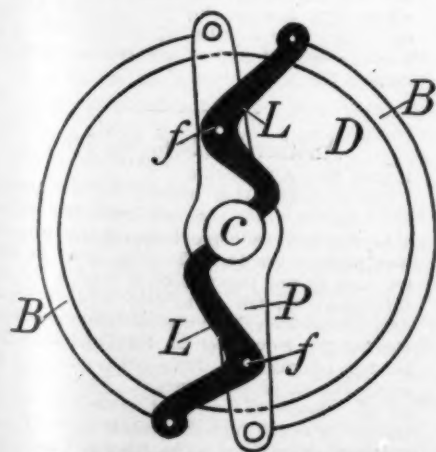


FIG. 3.—DRAWING SHOWING MECHANISM OF MORS CLUTCH.

expands the levers which by rocking tighten the bands around the drum, suitable screws being fitted for adjustment. The bands on this clutch are lined with cast pads

about two inches long each and separated by a space about two millimeters wide; this is in order to leave them all their flexibility, as they are made out of bands of spring steel.

By "the expanding pads or block clutch" it is intended to mean the clutch which is

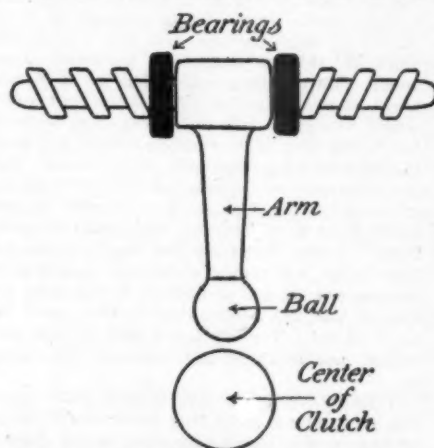


FIG. 2.—SKETCH SHOWING PRINCIPLE OF BONNAFOOS TYPE OF CLUTCH.

fitted on the Gobron-Brillie machines. The term is rather vague, but it is as near to a comprehensive term as the writer can think. The clutch in question is the Herisson clutch, which was described in detail a few months ago in these columns. It will be remembered that the degree of slip permitted before the load is positively taken up can be mathematically determined by the maker, while this clutch which contains no clutch spring proper adjusts itself to any power it might be required to transmit up to the breaking point of its constitutive parts.

As a description of this mechanism would further increase the length of this already too long study we shall refer the reader to the very full account which was previously given of this Herisson clutch.

Before closing with the hydraulic clutch the Hautier clutch might be recalled. This clutch is at the same time a planetary speed reducing gear. It acts by the tightening of a band around the outer member of a planetary set otherwise idle, thus giving a free position and a driving position with a reduction of 3 to 1.

The hydraulic clutch is one in which the driving agent is the friction of a liquid. The principle of the attempts made in that direction ("attempt" is the word used, as no really practical device has yet been worked out), is that of a rotary pump the delivery pipe of which would be stopped, thus causing the rotating part of the pump and its casing to run together, this being the driving position. If the delivery pipe be opened and in communication with the intake there will be no tendency for the parts to rotate simultaneously, this being the free position. Any intermediate or throttled condition of the by-pass would give any desired amount of driving or slipping. The principle is approximately the same as that of the

well-known Lemp steering check which had such a success in the States.

The main defect of these clutches is the practical impossibility of getting down to a practical solution of the absolutely correct principle. This on account of the numerous points required, each of which leaks inevitably under the huge pressure set up by the drive in such an apparatus.

Attempts in this direction were shown by Turgan, Martin and Sparks & Boothby. None of these cared to disclose the general construction of their apparatus, neither would they show one working. It should be noted that Martin's seems to be the best from outside appearance, as it possesses only one exterior joint instead of three to nine in the other apparatuses. These are only mentioned for the sake of completeness, as although no satisfactory results have yet been secured there is undoubtedly a large field and a promising one for the inventor with pluck and money.

(To be concluded.)

FLORAL PARADE IN MOBILE.

MOBILE, ALA., March 3.—An automobile flower parade was held here last Tuesday and there were a number of very prettily decorated cars in the line that twice circled Bienville Square, passing the reviewing stand where the queen of the carnival and her maids reviewed the procession. Although the eight machines in line were disappointing in the single matter of numbers, each made a splendid appearance, the most attractive being the new Austin car of William Clark, handled by John Schaurmann. It was tastily decorated with *fleur de lis* and the carnival colors, and carried five pretty young ladies—the Misses Schaurmann, Geary, Roberts and Burns.

First prize of \$100 was awarded, however, to Mrs. William F. Tebbetts, who drove her own car, decorated with tiger lilies, and accompanied by three young ladies. Mrs. Charles Hervey won second prize of \$50 with an electric car decorated with American Beauty roses, and third prize of \$40 was awarded to Mrs. James O'Grady, who drove a red gasoline car decorated with red poppies.

NEW AUTO STAGE LINES.

Dr. A. James DeNike and Charles Brooks, of Whitehall, Mich., will start an automobile line between that city and Muskegon, Mich., this summer, making three trips each way per day. They will have an automobile 'bus which will carry ten persons and will run on a schedule. An auto line from Whitehall to Sylvan Beach summer resort is also under consideration.

An automobile service is shortly to be put on between the main post-office in Detroit, Mich., and the new sub-station nearing completion at Lyman court and Russell street. Detroit is the first post-office in the United States to be authorized by the department to use automobiles regularly between sub-stations.

Letter Box

Reply to Inquiry No. 319.

Editor The Automobile:

[320.]—"Amateur," who asks in the February 22 issue of "The Automobile" why his motor slows down or stops when the throttle is opened after the engine has been running slow, will probably find that the spring on the automatic air valve is too weak. When the throttle is opened suddenly the vacuum in the carburetor opens the air valve too much, admitting an excessive quantity of air which results in a non-explosive mixture being taken into the cylinder.

Why the motor works satisfactorily after it or the car gets under way, can be understood by bearing in mind that at high piston speed the vacuum in the carburetor will be sufficiently powerful to draw the proper amount of gasoline for an explosive mixture, notwithstanding the fact that the supplementary air valve may be wide open.

The remedy for the trouble mentioned is a heavier spring on the automatic valve. Care must be taken, however, not to fit a spring that is too stiff, as this would result in causing other troubles, the chief of which would probably be difficulty of running the motor at low speed because of too much gasoline being aspirated.

The question of automatic air valve adjustment for smooth running at different speeds cannot be considered without taking into account the size of the air passages through the carburetor and the area or bore of the atomizing nozzle. The carburetor problem is a very complicated one—more complicated than many automobilists imagine—and is sometimes a riddle even to experts.

Non-Freezing Solution Experiments.

Editor The Automobile:

[321.]—In reference to your suggestion asking for experiences with non-freezing solutions for water-cooled cars, would say that I have been experimenting for the past two winters with different things, and, despite the assertions of our air-cooled friends, it is, in my experience, a good deal more trouble to get a gasoline car warm on a cold morning than to keep it cool afterward.

I have tried wood alcohol and water, equal parts; wood alcohol, glycerine, and water; and glycerine and water alone, in various proportions; all work well, but the odor is offensive, and it is not always wise to look into the tank or radiator with a lighted match. These mixtures, are however, quite satisfactory for cars having tubular radiators, with no fan, especially if there is zinc, galvanized iron, or aluminum in any part of the cooling system, as these metals are easily corroded by solutions of various salts.

For large engines, especially in cars where the radiating surface is none too large for the power, there are few things which will give better results than strong solutions of pure calcium chloride. It must be changed three or four times in a season, and is not pleasant and cleanly to handle, but is very effective. The writer used it all last winter in a 12-horsepower and a 45-horsepower.

There is one trouble with all mixtures and solutions: there is no certainty as to their strength after a brief use; even a hydrometer will not give reliable tests on account of chemical changes, particles of iron rust, etc., held in suspension.

Water cooling really gives so little trouble that the parts belonging to the system are apt to be shamefully neglected. Keep the pipes, radiator, pump, etc., clear and in good order and entirely free from leaks, and have the pump working and the fan in order.

There is one other plan which I have tried this winter on a 20-horsepower, four-cylinder car, and it has worked even better than water usually does. Unfortunately, it is not suited to large motors, and will not usually work in tubular radiators, even for small ones. The car in question has been in constant service; in fact, has been out every single day since it was bought, last September. The first of November I filled the cooling system with ammonia oil so called. This is a thin oil, used principally for lubrication of ammonia ice machines, and remains perfectly fluid at 10 degrees, and probably much lower. Since that time the machine has run 2,235 miles, the temperature has ranged from 78 degrees in the shade to 4 degrees, and the oil has not been renewed and none has been added. The oil is, of course, not corrosive, nor is there the slightest odor from it.

If you have a machine with a good vigorous circulation, cylinders about four inches or less, and a cellular or other finely divided cooler, the oil will probably fill the bill. Good grades of this oil cost about thirty cents a gallon, and do not flash below 375 to 400 degrees, so that it should probably be as safe as alcohol solutions, and the cost per season is practically negligible.

Fraola.

Providence.

Motor Horsepower Ratings.

Editor The Automobile:

[322.]—What is meant in referring to the rating of gasoline motors, by such terms as "18-20," "23-30," "45-50" and so on as applied to horsepower? Which number represents the actual horsepower the motor is capable of developing, and what does the other number mean? XX.

The first number indicates the horsepower the motor is supposed to develop at its normal speed, and which it should sustain. The second number indicates the maximum horsepower available by speeding the motor beyond the normal number of revolutions per minute—in other words, the power that can be used for emergencies where an extra power is required for a short time.

That Climb That Did Not Come Off.

Editor The Automobile:

[323.]—We notice in your March 1 edition a reference to a Cleveland hill climbing contest which did not come off.

As your article is not clear, we would like to give the facts of this case. We append the contract which Mr. Paxson made out and which he insisted we sign or nothing at all. You will notice by this contract that there would be no possible chance for us to win, as a contract of this kind must state specifically if either party is to receive any money. Mr. Paxson agreed to race his car up any hill which we might select, and, as we left it open to their suggestion, they suggested Cornell street hill, as they thought our car was geared for steep hill climbing and that we would not be able to make sufficient speed on the low grade at the bottom and also at the top of the hill.

We offered to race the Jackson car up any hill which they might select without any contract, the only conditions being that both start at the bottom at the same time and the one which was to reach the top first was

to receive the money. We put up \$200 in cash with the sporting editor of the Cleveland "Leader," William McKay, and the Paxson Motor Car Co. put up a check for \$200 which the "Leader" refused to accept, as he had written across the top of the check, "This is subject to a written contract." The Paxson Company made a play to get the check cashed, but did not do it, and afterwards suggested that we race for fun. Of course, we would not do this, as our car is not in the same class as theirs, and the only thing which we could get out of it would be the money. There would be no credit to us in racing a car of their class. We were unable to get the Paxson Company to sign any kind of a contract at all or to put up any money to race on any hill.

We are inclosing you the proposition which we made to the Paxson Motor Car Co., and we were and are still willing to substitute in this contract any hill which they may suggest.

These two contracts which we are inclosing you are exact duplicates of the ones which were made out.

We hope that you will publish this so that the public may not be misinformed as to the true state of affairs.

R. H. Magoon Motor Car Co.

Cleveland.

Herewith are the two proposals:

Paxson Motor Car Co. proposal:

"Article of agreement of hill-climbing contest and speed test between standard stock gasoline Pope-Toledo and Jackson cars:

"The speed test on level is for car crossing the line first, said cars are to be standard stock touring cars used in the hill-climbing contest without any alterations.

"Hill-climbing contest is not for car getting up first, but the car to win is the car making hill with same number of people in on high gear without any shifting of gears.

"Be it fully understood between the Paxson Motor Co. and the Magoon Motor Co. that the Pope-Toledo is to win both contests or Magoon loses the wager (\$200)."

Magoon Motor Car Co. proposal:

"We wish to make the following proposition to the Paxson Motor Car Company:

"We have put up with Mr. McKay, of the Cleveland "Leader," two hundred dollars in cash. We will start our Pope-Toledo car, on high gear, at Euclid avenue, corner of Cornell street; they to start their Jackson car at the same time and place, and put up two hundred dollars in cash. The car which first crosses the line at Cedar avenue car track, beyond the top of the hill, is to win the contest and to win the two hundred dollars."

Another Reply to No. 300.

Editor The Automobile:

[324.]—Letter Box Inquiry No. 300, in reply I beg to state that the two-cycle engine was the first to come into general use and was made prior to 1892. The point in controversy is not the two-cycle engine but the three-port system as applied to a two-cycle engine, on which there are two patents—Sints, No. 509,255, November 21, 1893, and Day, No. 544,210, August 6, 1895—both claiming to cover the three-port system. These patents do not cover the two-port system or where the air is taken into the crank case through a check valve. Barthel & Barthel.

Detroit.

The patent claims and principle patent office drawings as contained in the Sints and Day letters patent given above were published in "The Automobile" for February 22, 1906, page 419.—Ed.

Ottawa, Canada, an Interesting Touring Center.

By ROBERT BRUCE.

DURING the summer of 1905 the writer had occasion to make a few short trips in and about Ottawa, Canada, and was not a little surprised by the motor-ing possibilities in the neighborhood of the Dominion capital. Another source of surprise was the number of cars owned there and the interest exhibited by the pioneers of automobilism in that district. The tourist making a few excursions in and about Montreal and Toronto may possibly imagine that the upper limits of Canadian touring have been reached. Not so; Ottawa and Quebec, at least, are worth considering in the same connection.

Ottawa is interesting in many ways to the stranger. The city is superbly situated on a high bluff at the confluence of the Ottawa, the Rideau and Gatineau rivers, the former the interprovincial boundary; it possesses the distinction of being the political headquarters of the Dominion, where the Parliament assembles and where the Governor General and all the ministers reside; it has the air of progressiveness and a resolute activity is noticed on every hand. One's first five minutes' ride along the main thoroughfare—Sparks street—say from the Canada Atlantic Railroad station or the nearby post-office to Bank street, where the principal automobile agencies are located—will convince him of the substantial character of almost everything in Ottawa.

Ottawa has a population in the neighborhood of 70,000, and nearly 100 miles of streets are within its limits. The half dozen wideawake American sawmill men who located there during the forties and fifties were attracted by the magnificent force of the Chaudiere Falls, estimated at about a quarter-million horsepower, and the vast Canadian forests, drained by the Ottawa and its tributaries.

One of the most beautiful driveways in all America is that extending from the government property on the northeastern city limits, southerly and in part along the Rideau Canal banks, and then westerly to the Experimental Farm. The farm is one of the projects of the Ottawa Government Commission, a body of five men clothed with unique powers. Since the government pays no taxes of any kind to the city where its vast properties are located, an appropriation of \$75,000 a year is contributed toward the beautifying of Ottawa. This commission has the power to take over any property needed for its purposes, to close any existing road or build any new thoroughfare it sees fit. The money donated by the government is spent to good advantage, and still better results are expected from future appropriations. Besides the driveway to the farm, Rockcliffe Park has been much improved out of the same fund.

Ottawa is in reality the center of a superb but as yet largely unexplored touring dis-

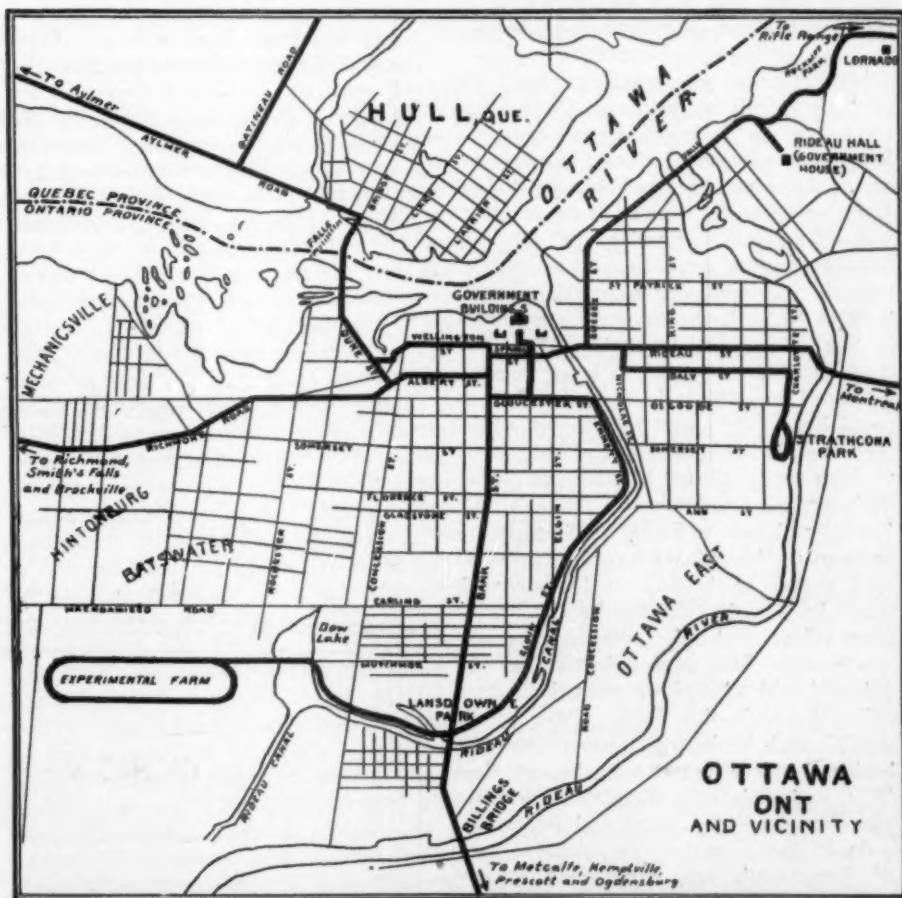
trict, with fair roads leading to many interesting places. It is possible to tour all the way to Montreal, about 130 road miles distant, or to reach the St. Lawrence River at either Prescott (opposite Ogdensburg, N. Y.), Brockville or Kingston, the route to Kingston being part of the way along the famous Rideau chain of lakes. Then there are a number of splendid short rides to nearby places of interest on both sides of the interprovincial line. Within the next few years some of these routes ought to become about as well known as corresponding routes on the American side.

Hull, opposite Ottawa, and the third city in size in the Province of Quebec, is most

direction. The Parliament buildings should be considered the center of all local trips. The route to the Experimental Farm, along the Rideau Canal, comprises the principal portion of the new Government driveway, and should be traversed by every automobilist. Strathcona Park, near the Rideau River, has been opened recently by the Government Improvement Commission, and is well worth a visit. Rideau Hall, the residence of the Governor General, Rockcliffe Park, and Lornado, the extensive estate of Warren Y. Soper, are reached by the line shown from the center of the city across the Rideau and up along the banks of the Ottawa River.

OGDENSBURG TO OTTAWA.

The principal gateway into the Ottawa district from New York state is Ogdensburg, from which the Canadian capital is



MAP OF OTTAWA, ONTARIO, SHOWING THROUGH TOURING ROUTES AND ROADS TO PRINCIPAL PLACES OF INTEREST.

widely known as the headquarters of the greatest lumber industries in the world. Here the enormous water power of the Ottawa River is seen at its best. One can drive his car from Ottawa to Hull through the lower part of the town, and back on the opposite side of the river, easily in half an hour, part of the journey being in Ontario and part in Quebec.

The accompanying map shows all the principal routes into and out of Ottawa, which even the locally unacquainted tourist will have no difficulty in following in any

distant a trifle over sixty miles. The ferry across the St. Lawrence River from Ogdensburg to Prescott, on the Canadian shore opposite, is amply large for any automobile. There are two towns between Prescott and Ottawa for the tourist to keep chiefly in mind—the first is Spencerville, eleven miles from the starting point; the second, Kemptville, distant about forty miles from Ottawa. The road for the entire distance is fairly good; and unless there have been heavy rains one can very comfortably average fifteen miles an hour.

Taking an Automobile Abroad.

By W. P. STPPHENS.

Fifteen miles or so before reaching Ottawa there is what is called the "Military Highway," which is macadamized, and over which you can make any speed desired within the limits of your machine. From a point about ten miles below Kemptville to the "Military Highway" the road is sandy, but not to a degree to cause unpleasant driving. Four hours will ordinarily be sufficient to cover the entire distance, and for the last forty miles (from Kemptville to the outskirts of Ottawa) a speed of about twenty miles an hour can ordinarily be maintained.

From Kemptville the route runs via West Osgoode to Dawson; thence to Greeley's and from Greeley's to Ottawa. This run finishes at Ottawa over Billing's Bridge, spanning the Rideau River, and comes directly into Bank street, on the downtown end of which the principal garages will be found. A right turn from Bank street to Sparks street will place the tourist on the principal business thoroughfare of the city.

OTTAWA TO BROCKVILLE.

Many tourists, in arranging runs from St. Lawrence River points to Ottawa and return, go via Ogdensburg and return via Brockville, between which and Morristown, on the American side, there is a good-sized ferry, crossing the river at frequent intervals. This gives a "circular trip" of something more than 120 miles, and as Morristown is only ten miles from Ogdensburg, both on the St. Lawrence, there is not much lacking of a complete circle. The route from Ottawa to Brockville is as follows:

Leave Ottawa via Albert street and Richmond Road, over gravel road to Bell's Corners, and via Bell's Corners and Fallowfield to Richmond; thence by clay road from Richmond to Franktown via Dwyer's Hill. From Franktown to Smith's Falls there are two roads. New telegraph poles are planted on a portion of the way on the new road, which leads to the left after leaving Franktown village, and before crossing the railway tracks. This road is better than the old road, with which it connects about three miles above Smith's Falls. Pass out of Smith's Falls by Beckwith street, cross the bridge, thence by gravel road through New Bliss, and Toledo to Frankville, Addison and Glen Buell to Tincap and Brockville.

As highways go on this continent both of these roads are fairly good in dry weather. Reckoning in both cases from Ottawa, the road to Prescott is macadamized to Metcalfe, a distance of twenty miles and the road to Brockville is macadamized to Richmond, a distance of twenty miles. Beyond these points the road alternates between gravel and clay. Distances: Ottawa to Prescott (Ogdensburg), sixty to sixty-five miles; Ottawa to Brockville also sixty to sixty-five miles, according to the way the trip is made.

As the date of the European circuit clashes with Brescia week, the Italian A. C. will not be represented in this touring contest.

MANY owners who contemplate an automobile trip abroad, using their own car, are puzzled to know how the transportation of the machine on a steamer will be accomplished. The shipment is really by no means as difficult an undertaking as it at first sight appears, and so many automobilists have made the transatlantic trip, by so many different lines, that the steamship companies have become accustomed to handling this rather bulky baggage. An investigation of the subject has been made for the information especially of intending tourists, and the procedure here discussed, while applying more particularly to the port of New York, is not very different from that followed in Boston, Philadelphia and other ports.

The first point is to make sure of such compliance with the customs regulations as will avoid all trouble and dispute, either in the port of arrival or on the return of the machine to the United States. There is, of course, no duty on a machine built in the United States when returned from a foreign port, but at the same time it is desirable to

take out a shipping manifest. This may be obtained by a personal visit to the Custom House, without the services of a Custom House broker. It is well to bear in mind, however, that it is in general best to transact all Customs business at home and abroad through a broker, as the fee is small in comparison with the annoyance and loss of time to which the owner may be subjected in attempting to conduct the business himself under conditions with which he is unfamiliar. No government charge is made for the shipping manifest, and no charge whatever on the return of the car.

In the case of a machine of foreign make (which has already paid duty on its original entry) the routine is a little more complicated; no duty is levied upon the return of the car, but to make sure of the free entry a certificate of registration is necessary. This may also be obtained personally at the Custom House, but, in addition, it is necessary in New York to submit the car for inspection at the Appraisers' Stores, at Laight and Washington streets. Here an inventory is made of the condition of the car

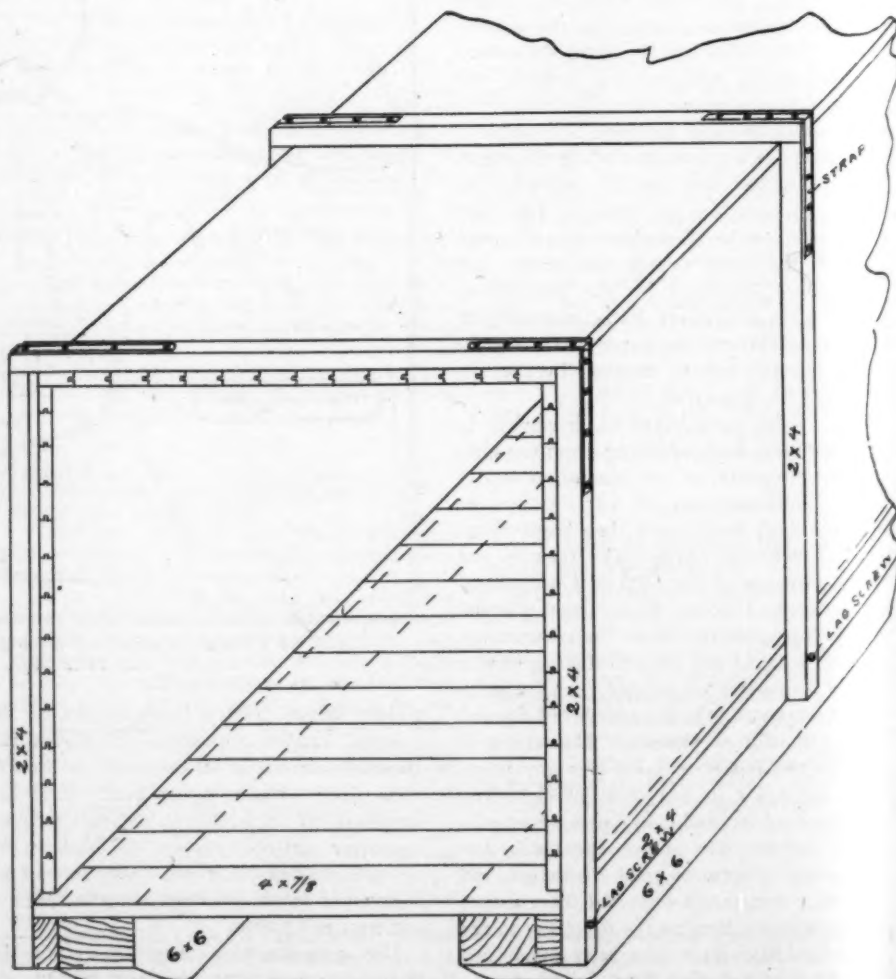


DIAGRAM OF CRATE FOR SHIPPING AN AUTOMOBILE TO EUROPE, SHOWING ARRANGEMENT AND DIMENSIONS OF SCANTLINGS.

and the tools, parts and tires, in order to prevent the shipment of the car abroad for radical repairs or rebuilding and the bringing in of a new outfit of tools and parts.

For shipment by steamer the car must be securely crated or boxed, either being optional with the shipper, provided that the car is adequately protected in hoisting and stowing. In the case under consideration, of a touring car under private ownership, the car will be boxed as nearly as possible in running condition. Cars of ordinary dimensions are usually stowed in the hatchways, where they may be lifted out immediately on arrival. With the big cars, such as buses and the largest touring machines, it is sometimes necessary to lower the box or crate end first, the length being too great for the hatch.

The boxing may be done where most convenient, the car being sent by rail to the port of shipment and carried by truck to the steamer, but where it is possible, the easiest way is to drive the car under its own power to the vicinity of the wharf, empty all tanks, stow all parts securely and turn it over to the men who make a business of boxing goods for shipment. If desired, the whole business may be placed in the hands of one of the large foreign express companies, which will attend to the customs, boxing and freight charges. The charge for a crate or box in New York is from \$50 to \$60, and the ocean travel is based upon the number of cubic feet in the package. In most cases the box will be required for the return trip, and it should be built with a view to easy removal and replacement without damage, all parts being put together with carriage bolts, lag screws or large wood screws. Only seasoned lumber should be used, and the holes for the main bolts should be larger than the bolts. After the car is removed on arrival on the other side, the case will be stored in some private warehouse near the wharves, or by the steamship company, until needed for the return trip. If built of unseasoned lumber and left in a shed for several months in summer, some difficulty may be met in bringing the parts together and entering the bolts in their holes.

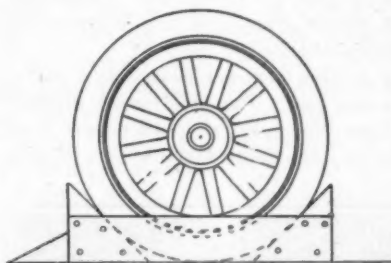
The following method is followed in one of the largest American factories in the package of cars for foreign shipment, and as the construction is both simple and strong, it is well adapted to the case of a single private car.

Cars to be shipped across the ocean are first very carefully gone over and all bright and unpainted parts are covered with a thick grease to prevent rusting. The car is then measured to determine the smallest possible dimensions of the case; the inside depth should be about 2 inches greater than the height of the car, so that the top will not strike the case through any jarring in transit.

The material for the case is the ordinary Norway pine, the sides being of 4 by 7-8 inch matched ceiling, dressed both sides. Two pieces 6 by 6 inches and 2 inches longer

than the extreme length of the car form the sills; the four ends being beveled on the under side to form skids under which rollers may be placed. The skids should be spaced at such a distance as to come directly under the wheels; on the outside of each a piece 2 by 4 inches should be spiked fast, with top level with top of skid.

The flooring should be of the same length as the extreme width of the car, and nailed permanently to the skids and the 2 by 4 inch strips, forming the bottom; care being taken to have the skids parallel and the flooring



square to them. From a stick of 4 by 8-inch timber eight wedges are now cut; the car is run into position on the platform, and each wheel is blocked by two wedges well fastened to the floor and skid. A strip of heavy duck, or other material, which will not scratch the paint, is now placed over the felloe and tire and its two ends are well fastened to the floor. The fastening of the four wheels in this way prevents the car from jumping up, and should be carefully attended to. Two pieces of board from 4 to 6 inches wide are now fastened to the wedges, on each side of the wheel. Four smaller wedges are cut from 2 by 4-inch stuff and so fastened to the floor as to butt against the two forward wedges of the front wheels and the two rear wedges of the rear wheels. As a further precaution, after the axle is wrapped with some fabric to protect the paint, an iron strap is placed over the axle with both ends fastened to the floor by lag-screws.

The sides are built up on four uprights to each side, of 2 by 4-inch stuff, the length of each being the height of the car, plus 2 inches clearance already mentioned, plus twice the thickness of the ceiling, plus 4 inches. This allows each upright to lap down 4 inches on the side of the skid, to which it is fastened by a lag-screw. The stuff for the sides should be cut shorter by twice the thickness of the ceiling than the length of the skid, thus permitting the ends to set into the rabbet formed by the sides, top and end uprights. The ceiling for the sides should be well nailed to each of the four uprights. The top ceiling is similarly nailed to four crosspieces, each 2 by 4 inches. The ends are nailed up on three pieces of 2 by 4 inches, which lap over at top and bottom and are screwed to the skids and the top crosspiece. The edges of the cover should be fastened to the sides with wood screws and the crosspieces

should be fastened to the side uprights by lag-screws, after which the angle should be further strengthened by a steel band, lapping at least a foot on each piece, and fastened with wood screws. The ends may now be slipped into place and fastened with wood screws and lag-screws through the crosspieces into skids at the bottom and the crosspiece at the top. This construction leaves the inside of the box entirely free of braces and perfectly smooth. The ends, top and sides may be quickly removed in unpacking the car. The address of the consignee should be plainly marked and in another place the address of the consignor. The gross and net weight should, if possible, be marked, and also the cubic feet of space which the box will occupy.

IMPORTS AND EXPORTS OF AUTOS.

During the month of January last the United States imported 120 automobiles, of a total valuation of \$402,976, and automobile parts aggregating \$68,748 in value. These figures bring the totals for seven months ending with January to 616 cars imported at a valuation of \$2,269,378, and parts to the value of \$204,805.

Against these figures there were exports of automobiles and parts to foreign countries valued at \$297,694 in January and \$1,438,600 for the seven months ending with January. In the same month a year ago the exports were \$100,000 less.

The following table shows the distribution of our exports:

Exported to:	Seven Mos., ending with	
	Jan., 1906.	Jan., 1905.
United Kingdom.....	114,991	421,982
France	16,369	113,696
Germany	4,806	30,824
Italy	20,005	62,094
Other Europe.....	4,448	66,597
British North America..	22,107	250,116
Mexico	30,935	145,179
West Indies and Bermuda	40,461	104,893
South America.....	3,588	41,490
British East Indies.....	4,147	24,149
British Australasia.....	32,669	117,365
Other Asia and Oceania.	2,000	29,746
Africa	1,168	20,180
Other countries.....	10,289
Total	297,694	1,438,600

An automobile weighbridge, devised by a well-known English firm, W. & T. Avery, may be laid down on any level stretch of ground without excavating, the platform being self-contained and the entire scales assembled in such a way that it may be taken down and reassembled by an ordinary workman. The capacity is 5,000 pounds, with a platform 6 by 12 feet, ample for the accommodation of the largest racing cars.

The British Motor Boat Club will have racing fixtures for the coming season at Oulton Broad on June 5, Liverpool on June 8 and 9, Cowes during the August week, and at Burnham in September. A date is also proposed for July.

Maine Successfully Has Its First Show.

PORTLAND, ME., March 3.—The first annual automobile and power-boat show ever held in the state of Maine opened in the Portland Auditorium, Monday morning, February 26, and continued successfully during the week. Assured of success from the start, the building was crowded with exhibitors, and the attention of automobilists from all parts of Maine was centered upon it. The promoter was Frederick M. Prescott, of Boston. So successful was the show that he has already engaged the Auditorium for 1907, and will make the event an annual one.

The Auditorium was elaborately decorated with American flags and streamers of many-colored bunting. The spaces were

commercial trucks were shown. One was a three-ton Oldsmobile, exhibited by the Maine Motor Carriage Company, and the other a lighter car of the Crown make.

Portland had never seen an automobile with a limousine body, so the White steamer—the only limousine at the show—caused much favorable comment.

The chassis of three cars, the first ever shown in the state, were interesting studies, particularly to the uninitiated. These were the American Mercedes, the Winton, and the Studebaker.

The display of power boats was a particularly fine one. The handsomest pleasure boat possibly was a twenty-foot craft shown by the Bath Auto & Gas Engine

rest of the week. The show proved not only interesting but educational, for it opened the eyes of many of the Maine people to the real possibilities of the automobile.

Maine is automobile enthused as it never has been before. Last year was the most successful in the history of this industry in the state, but the coming summer will indicate great growth. Agencies are numerous throughout the state, until now there is no city or town of any size that is without one. It is conservatively estimated that fully 1,500 automobiles will be owned in Maine before the end of 1906.

WANTS THE OPEN AIR SHOW.

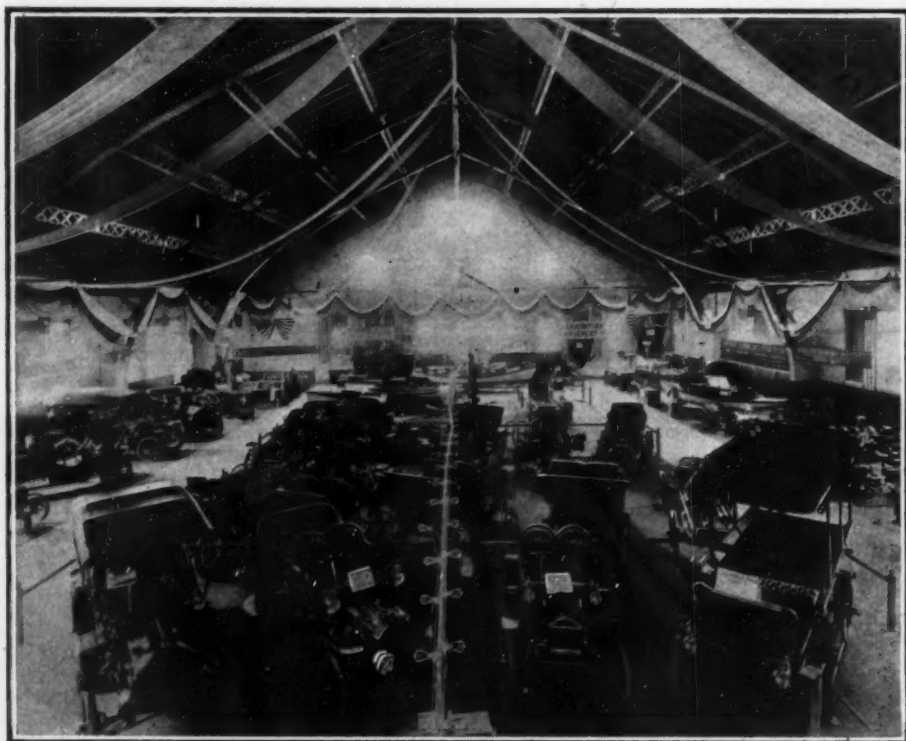
Buffalo City Legislators Much Interested and Invite the A. M. C. M. A.

BUFFALO, March 5.—It would not be surprising if Buffalo secures the first outdoor show of the American Motor Car Manufacturers' Association. This city is looking for the show, and will undoubtedly take the proper steps towards securing it. Not only are automobile manufacturers and dealers of Buffalo anxious to have the show come to Buffalo, but the city legislators have taken the initiative towards securing the exhibition. Recently the common council of this city adopted a resolution in which an invitation was extended to the association to hold its first outdoor exhibition in Buffalo.

Upon receiving the resolution of the council, City Clerk Sweeney immediately wrote to General Manager Roger B. McMullen, of Detroit, acquainting him with the facts and soliciting correspondence relative to what chance Buffalo had for getting the show. A similar letter was sent to Chairman James Couzens, of Detroit. Answers from both gentlemen have been received. Mr. McMullen's communication stated that he will spend Wednesday, Thursday, and Friday of this week in Buffalo. He also expects that the show committee, consisting of Benjamin Briscoe, James Couzens, A. C. Newby and J. B. Bartholomew, will be in this city on the same days. Mr. McMullen's letter closes with: "We shall be pleased to meet the men of Buffalo who are interested in this matter and confer with them."

Mr. Couzens' letter says: "I thank you for your courtesy in this matter, and I can assure you, in behalf of our association, that this action is highly appreciated and will, of course, have considerable bearing in making our decision as to the ultimate point at which to hold this show."

The bill for the proposed automobile road from London to Brighton, England, has been withdrawn from parliamentary debate. The question of a deposit caused the first trouble, while several protests have been raised against the laying of such a way in its proposed form.



INTERIOR OF PORTLAND AUDITORIUM DURING AUTOMOBILE SHOW, FEB. 26 TO MAR. 3.

set off by rails and electric lights, at the back of each a large sign telling the name of the exhibitor and the firm represented. On the main floor of the building were automobiles, power boats, motors, and accessories. In the basement were exhibitors who could not be accommodated on the main floor, and also a large number of second-hand automobiles. Large crowds attended all the week. In the evening concerts by the First Regiment band added to the enjoyment.

Though many of the Portland automobilists and other residents have been to some of the shows in Boston and New York, this first annual event proved a novelty and a treat to them. The pleasure and commercial automobiles displayed were objects of absorbing interest. But two com-

pany. It was fitted with a 5-horsepower Buffalo engine. Another noticeable boat was a 22 1-2-foot fisherman's dory with a 4-horsepower Tuttle engine.

The Atlantic Company had the largest exhibit of power boats. The principal one was a speed launch fitted with a three-cylinder engine of 12 horsepower, capable of sixteen miles an hour. Sea-going dories fitted with 4-horsepower engines were also shown.

The Portland people at the start were chary of the automobile show, as they had never attended one before. The price of admission, fifty cents, was thought a little too steep for the citizens of this town. But those who went the first day told their friends, and they told their friends, and the result was there were large crowds for the

Buffalo's Show in Prosperous Sway.

BUFFALO, March 5.—With the prospect that at its conclusion it will have been set down as the greatest event of its kind in this city, the annual exhibition of the Buffalo Automobile Trade Association, under the auspices of the Automobile Club of Buffalo, was opened in Convention Hall tonight in a "blaze of glory." This week all Buffalo, which is noted for its devotion to the motor car, will do homage to the imposing array of resplendent vehicles in the big hall.

During the greater part of last week Convention Hall was in the hands of the decorators and the result of their efforts is a scene of magnificent splendor. All the big iron girders and other network that support the roof have been artistically trimmed in ribbon effect, the colors being white and gold, with extra shadings for better results. From each girder is suspended a shield of white and gold, inscribed with the letters "A. C.," meaning Automobile Club. Electric lights are arranged to throw a light on these shields. Several thousand 16-candle-power lights have transformed the hall into a fairyland of brilliancy.

There was considerable trouble at former shows over the matter of display signs at the different booths. Each exhibitor had his own sign made as large as possible, so as to attract attention, with the result that many other exhibitors complained that the view of their signs was obstructed. This year the signs are more uniform. No sign is more than 2 feet 6 inches in depth, but the length, of course, is according to the frontage space of the exhibit. Each sign is hung at the same height, and each booth is carpeted in green.

There are fifty exhibitors, but there would have been many more had space been obtainable. For the last several weeks it had been Manager Dai H. Lewis's unvarying reply to would-be exhibitors that all space had been sold. The demand for space was so great that it would have been possible to extend the show to another building equally as large as the Convention Hall had it been obtainable.

The range of exhibits is very noticeably wider than at previous shows here, and the commercial vehicle occupies a most prominent position. Formerly only one foreign car had been shown in Buffalo, but this year three of the most noted European cars are on exhibition—Mercedes, Panhard and Renault. There is only one exhibit of tires, the management having decided the space formerly occupied in this line more valuable for other exhibits.

While other cities may boast of more automobile factories than Buffalo, none this side of the Atlantic boasts better, and the makers of the Pierce Arrow and Thomas Flyer are anxious to pit their favorites against the products of any factories across

the seas. One noticeable point about the new Pierce cars is the change in body lines from the curves which formerly marked the tonneau construction of Pierce machines to a body which may be described as almost severe in outline. It may be said, however, that there are no extreme changes in this year's Pierce cars over the machines of last year. The touring cars of the Pierce this year are 28-32 and 40-45 horsepower.

In the E. R. Thomas Motor Company's exhibit is seen the 50-horsepower Thomas Flyer and the cars developed from it by the substitution of various types of inclosed bodies for the usual touring car body. The well-known features of the Thomas models of last year are noticeable, despite the several changes made. The cars of 1906 do, however, excel last year's cars in point of finish and equipment.

The American Motor Truck Company is showing some trucks especially designed for heavy work. These trucks are noted for their durability and strength. The waterless Knox is shown at this show with a four-cylinder vertical motor mounted under the hood in front.

The list of exhibitors is as follows:

George N. Pierce Co., Buffalo; full line Pierce Arrow.
Babcock Electric Carriage Co., Buffalo; electric vehicles.
Cleveland Cycle & Auto Co., Cleveland; Eldridge, Waverley.
E. R. Thomas Motor Co., Buffalo; Thomas Flyers.
Walter Haynes; White steamer.
Poppenberg Auto Co.; Rambler, Marion, Corbin.
Jaynes Automobile Co.; Locomobile, Pope-Toledo, Pope-Hartford, Pope-Tribune, Oldsmobile, Buick.
Buffalo Motor Car Company; Autocar.
Buffalo Automobile Exchange; Haynes, Franklin.
Brunn Carriage Company; Stevens-Duryea.

J. A. Cramer; Premier, Stoddard-Dayton, Mitchell.

Centaur Motor Co.; Winton, Peerless, Cadillac, Northern.

Knox Automobile Co.; Knox.

Ford Auto Co.; Ford.

Buffalo Auto Truck & Motor Co.; Auto-trucks.

Palace Motor Car Company; Maxwell, Kane-Champlin, Reo.

American Motor Truck Co.; auto-trucks.

McNaughton & DuBroy; Mercedes, Panhard, Renault, S. & M.

Meadows & Hafer; St. Louis cars.

Buffalo Auto Station; National.

Buffalo Gasoline Motor Co.; marine motors.

The Kelsey Company; auto accessories.

Grey & Davis; lamps.

D. H. Lewis; automobile route books.

O. K. Machine Works; automobile accessories.

Swinehart Clincher Tire and Rubber Co.; tires.

C. E. Miller; automobile accessories.

Warner Instrument Co.; autometers.

Hartford Suspension Co.; shock absorbers.

Gloster Cycle Co.; motorcycles.

National Battery Co.; batteries.

Thomas Auto-Bi Co.; motorcycles.

Edmunds & Jones; lamps.

Neal, Clark & Neal; motorcycles.

Weed chain and Tire Grip Agency; non-slip chains.

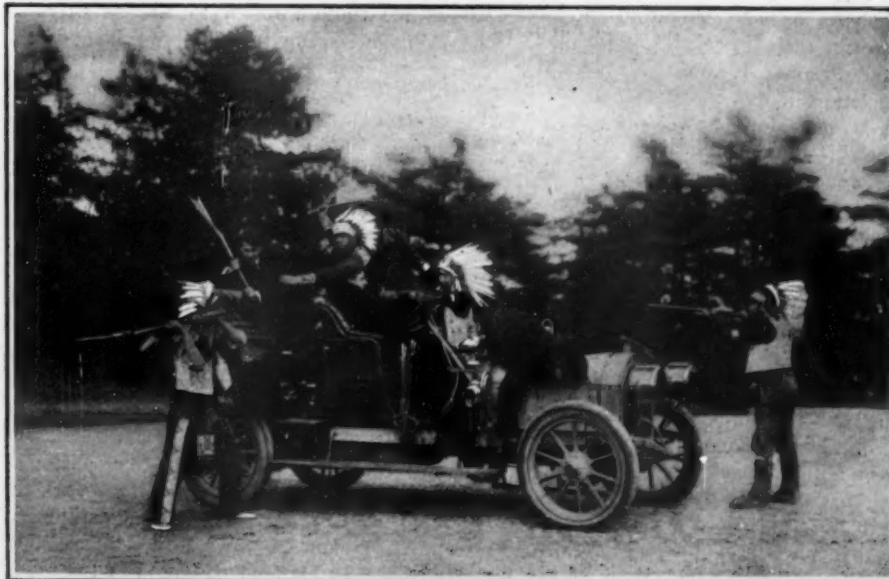
Thomas Spring & Gear Co.; new springs for automobiles.

Buffalo Carbureter Co.; carbureters.

"I thought I heard you refer to a radiator somewhere about this car," remarked Jack Hammond while enjoying a demonstration ride with E. R. Cordner at the Chicago show with the mercury down at zero. "Where the deuce is the blamed thing."

"Out in the hood," suggested Mr. Cordner, pleasantly.

"Well," said Hammond, as he wrapped his overcoat more closely over his esthetic lavender waistcoat, "why the dickens don't you have it back here, where it would throw some heat to the passengers?"—Chicago *Inter-Ocean*.



INDIANS HOLD UP E. V. HARTFORD'S GOBRON-BRILLIE IN CENTRAL PARK, NEW YORK CITY.

Scenery Sublime; Roads Abominable.

ALBUQUERQUE, N. M., Feb. 28.—With our autometer registering 7,340 miles, we pulled up in front of the Alvarado Hotel in this city Sunday night, the exhaust from the unmuffled cylinders of the *Mountaineer* being audible for several blocks. Instead of having to spend the night out of doors with a tarpaulin spread over it, the car found a resting place in a genuine garage—the first seen since leaving Los Angeles.

The Rio Puerco river was crossed at Rio Puerco station, by means of the Santa Fe iron railroad bridge, the thirty-inch wheels bumping over the ties for a considerable distance after passing the bridge before a place was found where the car could run down the embankment onto the trail below in safety. While too rough to be enjoyable, the railroad bridge was found much safer than an attempted fording of the famous quicksand stream. The Rio Grande river was crossed on a long, narrow wagon bridge on the outskirts of Albuquerque. There was a ford across the Rio Grande near the Indian town of Isleta, but as the rear wheels of a large lumber wagon were plainly seen sticking out of the quicksand bed where it had been abandoned weeks before, we thought it best to go around via the old road and wagon bridge.

The sand is deep on the trail between Rio Puerco and Albuquerque, and we came most of the distance on low gear. Occasionally we would be obliged to take to the railroad track where some unusually deep arroyo loomed up, whose sandy banks plainly indicated that to cross would mean hours of work with windlass and cable.

At Isleta we arrived in time to witness the Indian dance, a sight worth going hundreds of miles to see. The Isleta Indians, a tribe of the Pueblos, are a farming nation, and after months of hard labor have just completed a huge irrigating ditch which connects their cornfields with the Rio Grande river. It was to celebrate the completion of this big ditch that the dance was given. Many Americans were present from all points on the Santa Fe to witness the ceremonies, while the road between Isleta and Albuquerque was pretty thickly sprinkled with teams and horsemen who had run down from this city to see the sight. The large public square in the heart of the Indian village was filled with painted, gorgeously-arrayed Pueblos, all dancing a slow dance and keeping time to some of the quaintest instruments in the drum and horn line I have ever seen or heard. The Indians did not seem to appreciate it, however, when we chipped in our share of the music by turning on our chime horn. In fact, several seemed to question our right to make music, and started in our direction. Both Fassett and I thought we had seen enough of the dance, anyway, so I threw in the clutch and the

Mountaineer charged through the crowd and started down the road for Albuquerque, where we arrived about an hour later.

Gasoline is very hard to secure in any of the smaller towns in this section, and is not for sale between Gallup and Albuquerque, 168 miles by railroad, and under ordinary conditions a week's run. The Standard Oil Co., or rather its western branch, known as the Continental Oil Co., has a large supply house at Albuquerque, and anything in the gasoline and lubricating oil lines can be secured there at very reasonable rates.

From Albuquerque we shall run up the mountains to Santa Fe, the capital of the territory. From there we expect to head



NEW MEXICO TRAIL THAT TESTS TIRES AND PATIENCE TO THE LIMIT.

toward Las Vegas and follow the Santa Fe railroad until western Kansas is reached. There we shall probably take the Union Pacific route through to Kansas City, as every one seems to think we will find better roads in going that way.

Albuquerque, although situated in the heart of the desert country, boasts of a number of automobiles, and everyone who owns one is filled to overflowing with enthusiasm. I have met the majority of owners, and all are greatly interested in our trip. In nearly every case the cars now in Albuquerque have been driven in under their own power, mostly from Denver. There are machines owned in Santa Fe, Las Vegas and Raton, although the trails out in this country are far from what Easterners would call ideal automobile roads.

We often wonder what that party of eastern automobilists on the New York-St. Louis run of 1904, who sent a petition to the Governor of New York state calling attention to the poor condition of the roads between Albany and Utica, would say if they were touring through the territory of

New Mexico, where there are no roads—only trails to follow—no bridges across the streams, and every second ford of a quicksand nature.

If I remember rightly, my name was one of those attached to that document, but lately I have been thinking that possibly those New York roads were not so bad after all; at any rate we would be glad to try them again soon.

PERCY F. MEGARGEL.

CLEVELAND AUTO SCHOOL.

Course Has Been Separated from Y. M. C. A. and Divided into Branches

CLEVELAND, March 5.—The automobile course in the educational institution of the Cleveland Y. M. C. A. has become so popular and so important that the management of the association has decided to make it a separate institution, to be known as the Young Men's College of Automobiling.

Beginning this week there will be several branches of the course. There will be a class for those who desire to become automobile salesmen; they will be instructed in the mechanism of a machine and taught the best methods of presenting the "talking points" of various cars. Then there will be another class for owners and prospective purchasers; to these will be taught the principles and methods of operating a machine, with instructions regarding repairs. A more extensive course has been mapped out for those who desire to become engineers and repairmen or chauffeurs. The groundwork will be laid in a series of sixteen lectures, illustrated with stereopticon views and parts of cars.

The shop laboratory will come next. Here students will be taught all that is necessary for a competent chauffeur to know.

Having satisfactorily passed through this course, the students will be given practice in the driving of the car. First, on a stationary car, they will be taught how to control the engine and handle the speed levers. Actual road practice will follow when the desired efficiency has been reached.

Louis J. Buschman, B.S., has been placed in charge of the school as principal. Heretofore he has been in charge of the evening classes of the automobile course, but in the future he will devote his entire time to this work. He is a graduate of the Case School of Applied Science, and has had several years of practical experience in the automobile and gas engine business. The instruction as mapped out will be of a thoroughly practical nature.

It is expected that a large number of owners and prospective buyers will join the classes, which will be held for them Tuesdays and Fridays at 4.30 p. m. Men who desire private instruction will also be accommodated. The class for salesmen and those who work in garages will meet in the mornings, when their work is lightest. There will also be classes every evening in the week.

A Lesson of the Quaker City Show.

Location Kept Away the Casual Amusement Seekers, but Exhibitors Satisfied with Presence of Real Buyers.

PHILADELPHIA, March 5.—When Saturday night, amid the strains of "Home, Sweet Home," accompanied by the "honk! honk!" of numerous horns, the Fifth Annual Automobile Show came to an end in the National Export Exposition in West Philadelphia, there was recorded such a success in management and results as will require the best efforts of the promoters of anything short of a national exhibition to equal. Judged by the only true test of such functions—the creating of interest in automobiles and the furthering of sales in every legitimate way—no local show ever held in this country can claim precedence. And when it is recalled that this success resulted despite the formidable handicaps of a location several miles distant from the business center, with a long walk from the nearest trolley line, the outcome is even more remarkable.

"But," as one of the management, who was also an exhibitor, remarked, "these very handicaps served the exhibitors in good stead. It kept away that undesirable class (to us, however welcome they may be from the box-office point of view), the idlers of a great city, who are attracted to any sort of an exhibition merely because they pass the doors and see crowds going in. Thus our material came to us already relieved of its froth, which probably accounts for the phenomenal business the majority of the exhibitors have done."

Coming from the city's center, the nearest the visitor could get to the show building was Thirty-fourth and Chestnut streets, which meant a third-of-a-mile walk down Thirty-fourth street to the South Pavilion. Just here the exhibitors came to the rescue. Between 1 and 2 o'clock in the afternoon and between 7 and 8 in the evening, the entire force of demonstrators had orders to make part of an impromptu automobile transportation line, with the result that thousands of visitors were whirled from the trolley cars in jig time, a constant stream of cars keeping up the procession along Thirty-fourth street during those hours.

The public was possibly not so fortunate in getting a "lift" on the return trip, but the ride—possibly the first in the experience of many of them—left an impression which may well be charged to "missionary effort" and show a possible dividend at some future day. The Knox bus was in constant service—free—during show hours, day and night, assisted at times by the Reo bus. A big 3-ton demonstration truck of the Universal Motor Car Company, of New York, was also pressed into service at times, and as it made its stately way up Thirty-fourth street after the show, with

its half a hundred standing passengers, the ease with which it walked away with its tons of living freight was frequently and favorably commented upon.

No better idea as to just how successful the show has been can be had than from the expressions of those exhibitors who have as yet no permanent representation here. For instance, Manager Picard, of the Rainier, said: "It seems to me that the majority of visitors were buyers. The show was a magnificent success, and I predict excellent business for the branch house which we propose to establish here as soon as we can secure a suitable location."

A. L. Bennett, manager of the Mors exhibit, was similarly enthusiastic. "I not only sold the two cars which constituted the Mors exhibit, but several others. The show has been a success from every viewpoint."

W. H. Woods, of the Napier exhibit, was gratified with the success which his car had met here, and owned up to several sales. Same way with S. S. Thornton, of Smith & Mabley, several of whose exhibition cars were taken from the show before its close by purchasers who insisted upon immediate delivery.

Similar tales are told by all the local agents. The Rambler manager, W. F. Smith, gathered in deposits on no less than sixteen cars, not to mention the placing of seven agencies and additional orders from those already established.

The Ford made a decided hit, and actual orders exceeded a dozen, with demonstrations so numerous as to insure a big return before many days.

Manager E. C. Johnson, of the White Garage, lauded the show for the reason that it has "demonstrated to Philadelphians that it was not necessary to go to New York to make purchases, as many have hitherto done."

These few instances give an idea of the general tenor of the opinions on the subject solicited by THE AUTOMOBILE correspondent.

In the upper hall, where the sundries men held forth, the expressions of gratification at the excellent results of the week were general. All of them who were approached on the subject owned to steady sales all the week. The Voorhees Rubber Co. representative, who was taking orders for tire repairing, took deposits on \$1,400 worth of business during the week. Shock absorbers at from \$30 to \$60 a set are a somewhat expensive proposition, but all the demonstrators of those useful attachments filed many orders. Same way with tires and horns and lamps, and—but what's the use? Success, with a large block letter "S," was the key-note all along the line.

The enthusiasm reached the promoters about the middle of the week, when they saw how things were going, and—*mirabile dicta!*—they are actually already engaged in planning for next year's show. Fact! They feel so confident now, that distance from the city's center bothers them not a bit. When nearly 60,000 people will pay 50 cents a head—a not very popular price for Philadelphia shows, by the way—after coming nearly three miles in the trolley cars and walking, many of them, more than a half mile getting to and from the show, the managers argue, no anxiety need be felt on this score in the future. For Philadelphia before many years—possibly ere another year shall have rolled around—will have a convention hall larger than Madison Square Garden, if not so well located. By that time the pavilion in which last week's show was held will be in use in an addition to the Philadelphia Almshouse.

Should the projected convention hall not be ready—the proposed site for it, by the way, is on the Spruce street end of the same plot, all of which is owned by the city—the 1907 show can be held in the main hall of the old Transportation Building of the Export Exposition, which, when heated and lighted, even temporarily, will house a show, on one level, larger than either the New York or Chicago exhibitions.

SUPRISING STATE OF MICHIGAN CARS.

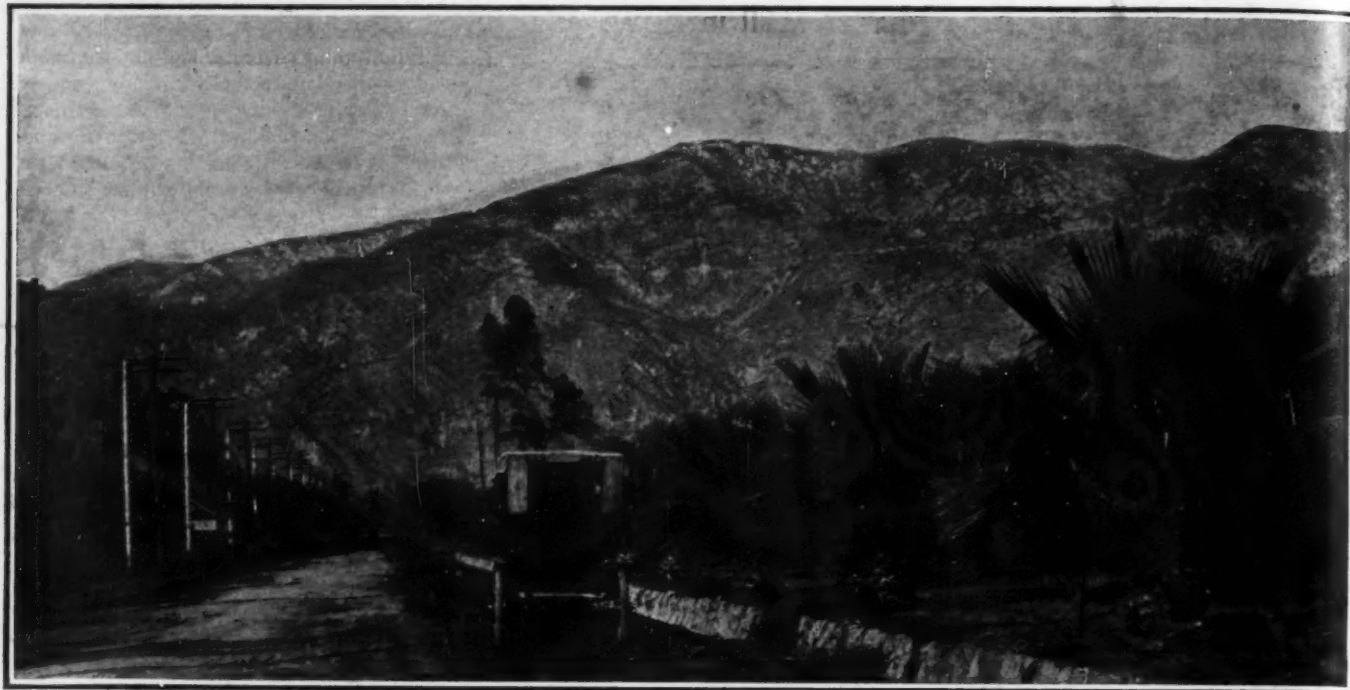
GRAND RAPIDS, MICH., March 5.—The automobiles of Grand Rapids are in a very bad condition; their tires are punctured; their engines refuse to work; they are in the repair shop half the time. New cars must have a great deal of work done upon them; some have to be rebuilt entirely. The evidence tends to show that of the entire 300 machines in town scarcely one is in condition to whiz along the streets and fill the heart of the owner with joy.

These startling facts might never have been discovered had not the local board of assessors undertaken to place the automobile on the tax lists. Faced with the certainty of taxation, the owners have begun to tell the assessors what poor machines they have.

The taxation of automobiles is a new wrinkle here. Behind it appears the hand of the state tax commission so far as can be determined by 300 notices which the assessors have sent out to all local owners of automobiles and which read like this:

"We find your name in the list of owners of automobiles furnished by the tax commissioners as owner of No. — (here is given the number of the owner's license). We enclose blank statement of personal property for taxation. In making your statement, please give the cost and present value of your automobile. If you have sold your machine, please give name and address of purchaser."

The assessors have already secured a multitude of statements in reply to this communication.



THE PASADENA-ALTADENA CLIMB HAD A MOST PICTURESQUE SOUTHERN CALIFORNIA SETTING.

A Notable California Hill Climb.

LOS ANGELES, March 3.—The Pasadena-Altadena hill climb on Washington's birthday was one of the most successful automobile events ever held in Southern California. An ideal California day greeted the climbers and onlookers; poppy fields were ablaze in yellow, and many visitors stooped to gather the California flower. The honors went to the Thomas, Stoddard-Dayton, Reo, Buick, and Franklin, each winning the first prize cup in its event. The affair was conducted by the local Dealers' Association, with H. D. Ryus chairman of the committee in charge.

The road used for the climb starts near the outskirts of pretty Pasadena, and goes almost straight north for four miles to the foot of the mountain. There are two turns, both very sharp. For the first mile and a half of the climb the grade is not over 8 per cent., and there was plenty of speeding along this stretch. The grade gradually increases until it is close to 15 per cent. at the top. The run is through a beautiful bit of country. As one goes higher and higher, the magnificent valley, one of the most beautiful in California, stretches out for miles and miles. Twenty miles to the south the peaceful Pacific sends up a silvery greeting, and in the distance can be seen the dim outline of Catalina Island.

Interest naturally centered in the open event for all touring cars, and it was in this contest that a 50-horsepower Thomas Flyer, owned by Thomas Hughes and driven by Frank Seifert, won the big cut glass punchbowl given for the fastest time of the climb. E. R. Thomas, of the company

making the car, was a pleased spectator of the victory, and expressed himself enthusiastically. "It was a beautiful place for a hill climb," said he, "and I shall always remember with pleasure my day at the foot of the California mountains."

The Pasadena-Altadena climb is to be made an annual event, and the citizens of Altadena have promised to construct a road which will eliminate the curves, and it may be extended farther north and include a stiffer grade. The following is a summary:

Runabouts Costing \$1,000 or Less—Won by Dr. Brown, 22-h. p. Buick; time 6.07 1-5. F. A. Bennett, 14-h.p. Ford, second; time 7.07. E. Bennett, Jr., 16-h.p. Wayne, third; time 7.25 1-10.

Runabouts Unlimited—Won by D. C. McCann, 30-h.p. Franklin; time 6.32 3-5. H. D. Ryus, 18-h.p. White, second; time 7.14 1-5.

Runabouts Costing \$1,500 or Less—Won by Dr. Brown, 22-h.p. Buick; time 6.05. L. T. Shettler, 16-h.p. Reo, second; time 6.41 1-2. F. A. Bennett, 14-h.p. Ford, third; time 6.48 2-5.

Touring Cars Costing \$1,500 or Less—Won by L. T. Shettler, 16-h.p. Reo; time 6.47 2-5. Mr. Hamilton, 22-h.p. Buick, second; time 7.35 1-5. D. L. Wolf, 18-h.p. Reliance, third; time 8.09 3-5.

Touring Cars Costing \$2,500 or Under—Won by H. L. Olive, 30-h.p. Stoddard-Dayton; time 6.26 2-5. Earle Anthony, 20-h.p. Stevens-Duryea, second; time 7.03 2-5. E. H. Hawes, 24-h.p. Frayer-Miller, third; time 7.03 1-5.

Touring Cars Unlimited—Won by Thomas Hughes, 50-h.p. Thomas; time 4.58 1-5. Western Motor Company, 35-h.p. Pope-Toledo, second; time 5.04 3-5. E. C. Anthony, 35-h.p. Pope-Toledo, third; time 5.06 3-5.

The Vanderbilt Cup Course.

The residents of Nassau county, Long Island, are very much interested as to the location of the course for the next Vanderbilt Cup race. So interested are they in the matter that petitions are being circulated throughout Nassau county which will be presented to the Vanderbilt Cup Commission, asking it to select the Long Island Circuit for the next race.

The 1905 course was a fairly good one, but the "S" turn at Albertson's and the dangerous one in the Guinea Woods can be avoided. This can be accomplished by selecting a new route from the Bull's Head Tavern, in the North Hempstead road, to Lakeville, thus avoiding the Back road and Willets road, these being the poorest stretches.

President John Farson, of the American Automobile Association, will announce the completion of the new racing board within the next few days. It is understood that Chairman Robert Lee Morrell positively declines a reappointment.

April Race Meets.

Arrangements are being made for a race meet at Pablo Beach, Jacksonville, Fla., to take place April 4, 5 and 6. The meet will be under the auspices of the Jacksonville Automobile and Motor Club, with W. J. Morgan assisting in its management.

During Easter week at Atlantic City the Atlantic City Automobile Club will hold a meet on the beach. The program will be a diversified one, and will provide for touring cars and runabouts in addition to the two races for the high-powered flyers. Entry blanks will be issued in a few days.

Wilkes-Barre Mountain.

WILKES-BARRE, PA., March 5.—The one hundredth anniversary of the founding of Wilkes-Barre will be observed on a grand scale, and one of the feature events will be a climb of the famous Wilkes-Barre mountain, which possesses a two-mile stretch of perfect road and one of the most picturesque in the country. The Centennial Jubilee will be held May 10, 11, and 12, and the hill-climb is scheduled for the opening day.

Wilkes-Barre being only seven to ten hours' reasonable run by automobile from New York City, it is expected that many participants and spectators will be present from the metropolitan district, in addition to those from Philadelphia, Harrisburg, and other Pennsylvania cities. The route from New York City to Wilkes-Barre is over excellent and passable roads, and through diversified scenery.

The Wilkes-Barre Automobile Club hopes to make the climb up the mountain here the successor of the Mount Washington event, which it is understood will not be held this year. The Wilkes-Barre Board of Trade, which is in general charge of the Jubilee details, is enthusiastic concerning the hill climb, and will use its best efforts to make the contest national in character. Entry blanks will be issued in the near future, and definite plans announced. The abandonment of the Eagle Rock hill climb adds importance to this event.

Substitute Bill in New Jersey.

TRENTON, N. J., March 5.—A substitute bill for his obnoxious measure which caused so much antagonism has been introduced by Senator Frelinghuysen. It must be confessed that the substitute is almost as drastic as the original bill, for it carries a provision authorizing arrests without warrant and subjecting automobilists to the mercy of the country constable anxious for a fee.

It is a certainty that the Associated Automobile clubs of New Jersey will meet this last measure with a solid front. Chairman W. F. Sadler, Jr., of the Law Committee, and Secretary J. E. Gill are already busy on the proposition.

In the substitute bill there is provided a somewhat lower tax on automobiles than the original calls for. It provides that all cars of less than 30 horsepower shall be taxed \$3 per year and a dollar additional for the chauffeur. Machines of 30 horsepower and more are to pay \$5 per year, with an additional \$2 for the driver's license.

The substitute, Senator Frelinghuysen claims, is modified sufficiently to meet all requirements, and he says he will do his utmost to have it passed.

While the law-abiding automobilists have the utmost scorn for their fellow-autoists who make themselves "hogs of the road," still they do not consider it fair that the entire sport should suffer because of these "outlaws." They will fight and fight hard against unjust legislation.

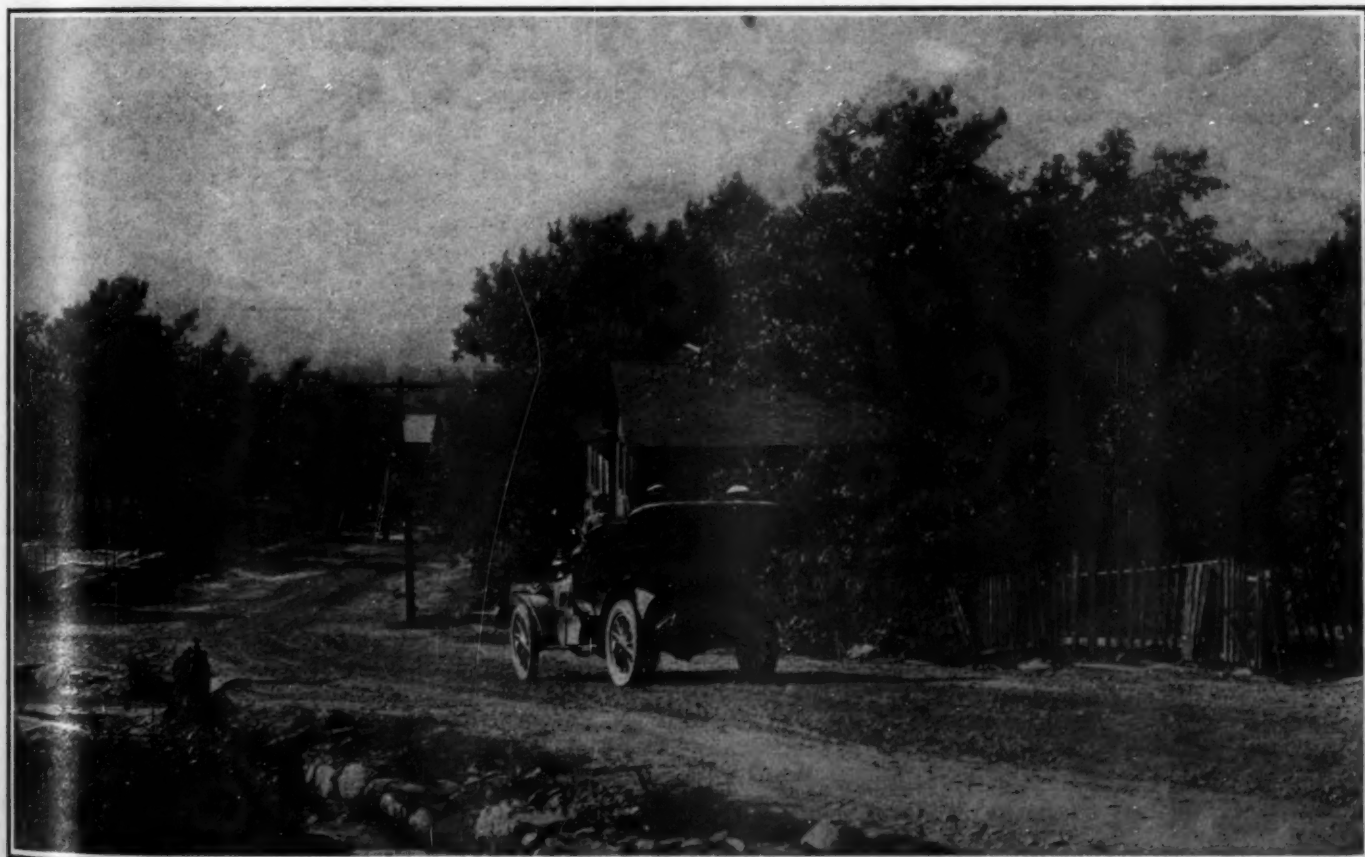
Aeronautical Matters.

Comte de la Vaulx, the well-known French aeronaut, is expected to reach New York in the near future, and probably will be present at the next ascension of the Aero Club of America.

The Aero Club of America is negotiating for a plot of ground near Pittsfield, Mass., and it may decide to establish permanent experimental headquarters at that place. It will be necessary to establish a plant for making hydrogen gas.

Professor Samuel Pierpont Langley, third secretary of the Smithsonian Institute, and particularly noted for his airship experiments, died recently at Aiken, S. C., as the result of a stroke of paralysis. Professor Langley was 72 years of age, and it is said that he spent \$100,000 of his private fortune in trying to solve the problem of human flight.

The technical committee of the Aero Club of Great Britain, whose principal functions are the investigation of aeroplanes and flying machines of the heavier-than-air type, has been constituted for 1906 as follows: Sir Hiram Maxim, the Hon. C. S. Rolls, Sir H. E. Colville, Major Baden-Powell, Colonel J. E. Capper, Mr. Frost, Mr. Pollock, Mr. Alexander, Mr. Spencer, Mr. Simms, Mr. Wallace, K.C., Mr. Moore-Brabazon, Dr. Hutchinson and Professor Huntington. Some interesting competitions in connection with this important branch of aeronautics are to be organized by the committee.



NEAR THE FOOT OF THE WILKES-BARRE (PA.) MOUNTAIN WHICH WILL BE CLIMBED DURING THE MAY CENTENNIAL JUBILEE.

Patents

Dust Preventive.

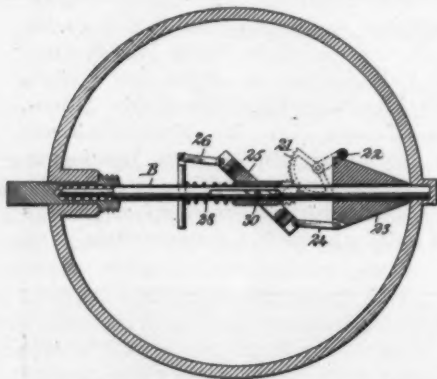
No. 813,389.—W. M. Sandison, of Ashfield, Ayton, Scotland.

An emulsion of "wool-fat" or "wool-wax" obtained from unwashed wool by washing with soap. The "wool-fat" contains also potash salts, which by their hygroscopic character prevent the road from drying; and creosote, or some similar substance, is added to the emulsion to protect it from decomposition.

Speed Indicator.

No. 813,135.—B. Volkmar, of New York City.

A device depending on the centrifugal force exerted by a metal ring, 25, when rotated by a shaft, *B*. The ring is pivoted on a diametrical pin, 30, which is slidable in a slot in the shaft. At one point the



VOLKMAR SPEED INDICATOR.

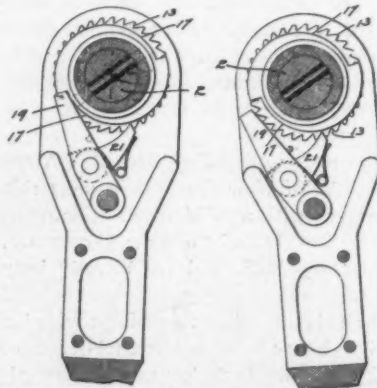
ring is pinned to a link, 26, and a spring, 28, tends to force the ring into the angular position shown. As the shaft revolves, the ring tends to assume a position at right angles to the shaft, and the effect of holding it by link 26 is to double the movement of link 24. The rotating cone 23 determines the position of the index finger through the parts 22 and 21.

Safety Starting Crank.

No. 811,928.—A. S. Johnson, of Minneapolis, Minn.

The principle on which this crank acts is shown in the drawings. The crankshaft 2 has a double toother ratchet 17 pinned

fast to it, and adjacent to that is a ratchet 13 which is connected (by means not shown) to the frame of the car and is stationary. Pawl 19 engages ratchet 17,



JOHNSON SAFETY STARTING CRANK.

and pawl 21, mounted on 19, engages 13. If the engine "kicks back," the first backward movement of the crank causes 13 and 21 to force 19 out of engagement, as shown in the second figure.

Transmission Mechanism.

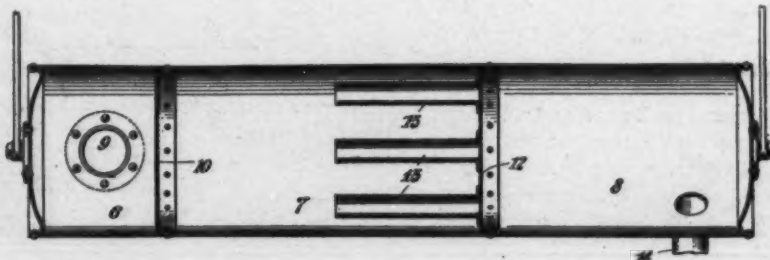
No. 806,316.—C. E. Bertels, of Wilkes-Barre, Pa.

This is a sliding gear transmission in which the usual friction clutch between the engine and the gears is supplemented by a second friction clutch between the gears and the differential, in order to let the gears run entirely free instead of at a speed determined by the speed of the road wheels when a change of gears is made. This, of course, reduces materially the shock of changing gears. The two clutches are operated simultaneously.

Muffler.

No. 813,203.—G. E. Franquist, of New York City.

This muffler is stated by the inventor to deaden the sound of the exhaust gases without back pressure, by utilizing the principle of interference of sound waves. The gases enter the chamber 6 by pipe 9 and pass by a great number of small perforations through plate 10 into chamber 7. The gases thus issuing take on the characteristics of a sound wave, which wave is reflected back and forth between plate 10 and plate 12. Somewhere midway between these plates the waves will interfere, with



FRANQUIST MUFFLER UTILIZING PRINCIPLE OF SOUND-WAVE INTERFERENCE.

the result that at that point there is no sound. Therefore the gases are taken from that point by pipes 13, and are further expanded in chamber 8 before their final discharge at 14.

Tachometer.

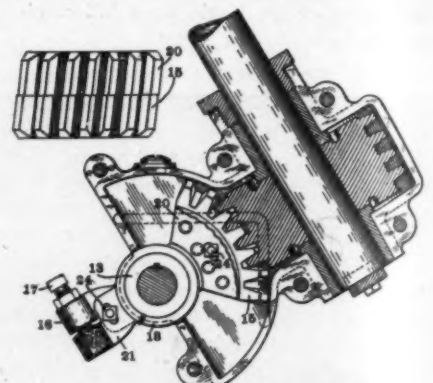
No. 812,937.—V. Koblizek, of Salmthal, Austria-Hungary.

A tachometer operating like a Pickering governor, with flyballs on bent leaf springs attached at one end to the shaft and at the other to a sliding sleeve actuating the index finger through a rack and pinion. A pair of clapper weights on the sleeve strike a signal gong when the speed reaches the predetermined maximum.

Adjustable Steering Gear.

No. 813,186.—J. Warrington, of Indianapolis, Ind.

This is a worm gear in which the worm wheel is split into two parts 15 and 20, of which the latter is swiveled by 18 on the hub 13 of the former. The two halves are held together by bolts 24 in slots, and the purpose is to offset 20 slightly on 13 to compensate for wear. This is done by a locked set-screw 17 threaded in an extension 16 of 13, and bearing against a stiff spring in extension 21 formed on 18. The purpose of the spring is to permit the seg-



WARRINGTON STEERING GEAR.

ment to be adjusted snug for the middle part of its travel, where it will suffer the greatest wear, and yet be free at the ends.

Gear-Driven Blower.

No. 813,204.—L. A. Frayer and W. J. Miller, of Columbus, O.

A centrifugal blower geared to the crankshaft of an air-cooled motor, and protected against shocks due to sudden starting and stopping by a spring cushion in the driving gear.

Gas Engine.

No. 811,757.—V. G. Apple, of Dayton, O.
An automobile engine placed vertically at the front of the car, and having the valve and other mechanism disposed within casings fitting close to the cylinders, so that no bonnet is required.

A Trying Non-stop Run in Winter.

PHILADELPHIA, March 6.—Nowadays it is not a difficult matter for an automobile to travel 1,000 miles without a stopping of the motor. To accomplish the feat under severe conditions of road and weather is a task more difficult of accomplishment.

A Rambler car, fitted with a double-

from Lancaster, a hole was encountered into which the car sunk over the axles. One hour and twenty minutes elapsed here, but the car was finally extricated by its own power without stopping the engine. At each town many interested spectators were given trial trips, though the demand was so great



NON-STOP RAMBLER WHICH PLOWED THROUGH MUD OVER ALL KINDS OF ROADS.

opposed motor and selling at \$1,200, started Tuesday noon, February 20, from 242 North Broad street, Philadelphia, and, going through the hilly section around Ogontz, it covered a 38-mile circuit until a 1,000-mile age had been accumulated.

During all of one day and night the car plowed through mud and water in one of the worst rain storms of the year, the mud being in some cases nearly to the hubs. When finally stopped by Senator Vivian S. Gable, the engine had been running continuously for 96 hours, 6 minutes, and the car had covered 1,383 miles under the worst conditions ever encountered by an automobile. During the run the car was in charge of J. E. Baugher, C. B. Cleaver, Herbert Bittner and Joseph Kachline, the last two named making the final relay of the thousand miles.

At the completion of the original undertaking of 1,000 miles the car was going so smoothly that it was decided to continue the run; but as the operators were all entirely worn out through exposure to wind and rain the car was left standing with the engine running until 9 A. M. Friday, when Joseph Kechline and Herbert Bittner started on a 250-mile round-about trip to Harrisburg. At places the roads were all but impassable, and about four miles from Harrisburg the three passengers had to go ahead of the car and pick out the road with the dash lamps, and finally, about twelve miles

that not all could be accommodated. After returning to Philadelphia a number of trips were made around the city, the engine being finally stopped by Senator Gable and the car taken to the Rambler booth at the Philadelphia show.

New A. A. A. Officials.

President John Farson and Secretary

Sidney S. Gorham, of the American Automobile Association, have been in New York City since March 1, and have conferred with members of the Board of Directors concerning plans for the immediate work of the organization. Both officials are known to be energetic and capable, and A. A. A. affairs are certain to be given requisite attention. President Farson has been a persistent opponent of unfair legislation, and Secretary Gorham, being a lawyer, will give much attention to this department of the national body. The A. A. A. Board of Directors held its March meeting this afternoon at the clubrooms of the Automobile Club of America. Substantial growth is assured the association in the next year.

Creates Thrills on the Coast.

A thirty-foot leap with an automobile across a gap at the foot of a steep incline is a performance with which Doctor Carver has recently been thrilling spectators at Agricultural Park, Los Angeles, Cal. After making a score of such sensational leaps in that city he planned a tour of California with his new "stunt." The accompanying reproduction from a photograph shows the "Doctor" in the midst of one of his wild flights. As shown, the essential equipment is a wooden incline ending at the bottom near the ground in an abrupt upward curve, forming the segment of a circle. Thirty feet distant is a sort of landing platform upon which the car alights after its leap. There is nothing but the driver's steady nerve and hand to hold the car to its course. The machine used for this feat is a second-hand Cadillac runabout of 1905 model bought from the Lee Automobile Company, of Los Angeles after it had seen six months' hard usage on the road. The leap is a very severe test of the springs, axles, and, in fact, all parts of the car, as may easily be imagined.



THE CADILLAC RUNABOUT WHICH LOOPS THE GAP AT LOS ANGELES, CAL.



THE MORRIS COUNTY (N. J.) GOLF CLUB, WHICH WILL PROVIDE FOR ITS AUTOMOBILING MEMBERS.

Providing for the Automobilist.

ASBURY PARK, N. J., March 5.—A matter of interest to automobilists all over New Jersey is the announcement that the Morris County Golf Club, one of the wealthiest organizations of its kind in the state, may erect a garage on its grounds this spring for the use of members and their friends owning automobiles.

While country clubs provide almost every known convenience and comfort for members, most of the New Jersey clubs seem to have forgotten the automobilists' needs in this respect, and take no account of the expensive cars that are driven to the grounds. There are usually stables for horses at those places patronized by horsemen, but automobilists must leave their costly cars out in the open or else house them in ill-smelling stables or under rickety sheds.

It is not so bad when the weather is fair, but no one is able to foretell atmospheric conditions with absolute certainty, and in summer showers sometimes fall on very short notice. The steward of a large and prosperous country club said that he was surprised that such accommodations for automobile members had not been made long ago. He declared that he heard many complaints last season from motor car owners whose machines were soaked through and through in some sudden rain-storm while their owners were out on the grounds, simply because there was no adequate shelter for automobiles.

John Pollock, who lives in the Seventh District, Wilkerson, Tenn., rode horseback to Antioch and hitched his horse in front of one of the stores. An automobile used by the Cumberland Telephone Company came along and frightened the animal so that it fell dead. Mr. Pollock will institute suit against the company for damages. —Exchange.

Doings of the Clubs.

The Automobile Club of Macon (Ga.) has been revived, and its new offices promise an innings of great activity, particularly in the matter of working for roads improvement.

At the regular "Tuesday Night" of the Automobile Club of America a large number of members attended the illustrated lecture of Frederick Moore, the subject being "Brigand Life in the Balkans." Mr. Moore, as an Associated Press correspondent, spent much time in the Balkan country.

The Springfield (Ohio) Automobile Club recently held its first annual banquet. After the banquet the old board of directors was reelected as follows: P. A. Staley, J. K. Williams, C. W. Russell, H. C. Downey and A. F. Sparks.

A banquet and entertainment surpassing by far every past effort of the Automobile Club of Buffalo recently took place in its clubrooms in the Teck Theatre Building. The affair was unique in every detail and surprise after surprise greeted the large number of automobile men in attendance. Everything was done in thorough German style. The orchestra played only German selections, the menu cards were printed in German, the dishes cooked in German style and the waitresses were garbed as picturesque German peasant girls. Of the many surprises the greatest was the springing of a bogus German count. President H. A. Meldrum told the members they were to be favored with an address by Count Von Unholz, who had made a special trip to Buffalo for the occasion. The listeners were just getting interested when the alleged count removed his whiskers and wig, disclosing himself to be Howard D. Herr, chairman of the entertainment committee. A good vaudeville entertainment followed the "fake" count's appearance. H. S. Evans, of Pittsburg, a member of the Automobile Club of Pittsburg, was a guest.

Chicago's Motor Boat Show.

CHICAGO, March 5.—The promoters of the first annual power boat and marine engine show, which is to be held here at the First Regiment Armory, April 7 to 14, expect that fully 100 exhibitors will take part in the show. Already nearly all of the space has been spoken for by different firms, and it looks as though Chicago's first show will set a record which will be hard to beat, in the West, for some time to come.

At the regular quarterly meeting of the Columbia Yacht Club it was decided to make power boats a feature of the season's schedule. Long cruises will be taken to ports along the Lake Michigan coast, but short-distance racing will not be tolerated. Able, seaworthy boats will be used. Howard Shaw was appointed chairman of the Power Boat Regatta Committee, with authority to select the rest of the committee.

On the Delaware River.

WILMINGTON, DEL., March 5.—Motor boats are becoming so numerous on the Delaware river that a motor and engine works has been established at Newcastle, which is about five miles below Wilmington and about thirty miles below Philadelphia. The plant is now being equipped with machinery, and it is the expectation of the owner to have it in shape by the time the shad season is under way, which will be about the middle of this month.

Newcastle is at the head of deep water, being but a short distance above the Delaware Bay, and is the center of the shad fishing industry. Formerly only row boats and sail boats were used by the shad fishermen and oyster dredgers, as well as the Jersey truckers, in taking their produce to Wilmington and Philadelphia, but now many of the boats are operated by motors, and the fever is spreading. The gain in time and the all-round convenience of the motor-driven craft are now generally recognized.

Sunset Two-cycle Touring Car.

THE car here illustrated, although made in considerable numbers during the past season, is practically unknown except in the vicinity of San Francisco, where it is manufactured by the Sunset Automobile Co. A sample car has reached New York, where it has attracted attention by its clean cut lines and silent running.

The car possesses direct individuality, but the most novel detail is found in the motor, a two-cylinder, two-cycle, vertical engine placed in front, with drive through planetary transmission and propeller shaft to the divided rear axle. The motor is the result of experimentation by Dorville Libby, Jr., manager of the Sunset company, and the present form was designed about four years ago, business conditions preventing its construction in a commercial form until the fall of 1904. A season's experience has not indicated the advisability of any alterations, and the model for this year is practically the same as the motor in use last year.

The difficulty often encountered in two-cycle practice of effective transference of the charge from the crank chamber to the cylinder at high engine speeds has been minimized in the Sunset motor by providing an increased initial compression of the gases in the crank chamber, which is made with as little clearance as possible, increasing the pressure of the burnt charge by reducing the cylinder clearance and by enormously increasing the area of the cylinder ports. Wire-drawing or choking the admission of the charge has been avoided by extending the ports entirely around the internal circumference of the cylinder, bridges of course being used, and by so shaping the head of the piston that more perfect separation of the incoming and outgoing gases is effected. The three-port system is not used, there being a check valve in the intake pipe.

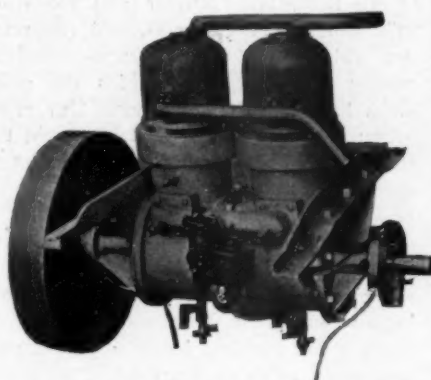
The resultant design is said to provide a two-cycle motor that will run at a greater number of revolutions per minute than a four-cycle engine with valves of a normal size and which will run slower than a four-cycle engine with a flywheel of equal size.

The 10-horsepower engine used in the runabout has two vertical cylinders of 3 1/2-inch bore by 4-inch stroke, with copper water jackets. The crankshaft is of built up construction with cast disk counterweights on the hardened and ground shaft. The bearings are solid phosphor bronze bushings, which have given satisfactory service in the cars now in use. Ignition is by jump spark, with the timer on the front end of the engine shaft, as shown in the accompanying illustration of the motor.

The use of a two-cylinder motor of the two-cycle type has enabled the company to produce a car light in weight with nearly all of the frame area available for passen-

gers or luggage. The total weight of the runabout is 850 pounds, notwithstanding the moderately long wheelbase, 84 inches, and the substantial construction of the axles and other structural parts. The tread is 45 inches, with wheels 28 inches in diameter, shod with 3-inch tires.

The motor is not only free from the gears, camshafts and valve mechanism of the four-cycle type, but the wiring is simple and direct by reason of the use of



SUNSET TWO-CYLINDER, TWO-CYCLE ENGINE.

a single coil with secondary distributor. The open and clean-cut appearance is still further enhanced by the absence of pump and driving mechanism, the water circulating by thermo-syphonic action.

The engine is set into the frame at an angle, with the design of affording a direct line of drive when the springs of the car are under normal compression. The transmission provides two forward speeds and a reverse, though the reverse gives an addi-

tional forward speed brought about by its engagement with the motor reversed or running in the opposite direction to normal. The high speed is direct drive with a maximum rate of about thirty-five miles per hour, the low, two and a half miles, and the reverse, also an additional forward speed, six miles per hour. Speed changes are effected by movement of a single side lever.

The brakes, acting on the drive shaft and on the differential, are foot actuated. Spark and throttle levers are located below the steering wheel, moving over notched quadrants. Hand-operated muffler cut-out is provided for emergency use.

In the construction of the frame straight-grained ash is used with steel flitch plates. The springs are three-quarter elliptics, shackled at the rear ends. The driving and braking stresses are taken by the springs. The rear portion of the body is flat, a boot or turtle type of back being removable so that a surrey seat, a duplicate of the permanently attached front seat, may be bolted in position to double the passenger carrying capacity of the vehicle.

A new model, an amplification of the runabout, will be added to the line this year, and already work is in hand on a number of the larger cars. This model will be equipped with a four-cylinder, two-cycle motor rated at 20 actual horsepower, shaft drive and dimensions increased here and there as necessary in a car of this power.

Although the new model will possess a power plant of twice the rating of the runabout, the question of total weight has been so carefully worked out that the four-cylinder car will weigh only a little more than the smaller machine.



SUNSET 20-HORSEPOWER TOURING CAR DRIVEN BY FOUR-CYLINDER, TWO-CYCLE ENGINE.



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The Era of Highway Improvement.

From all over the country accumulates information that makes apparent the widespread era of highway improvement that is just dawning in these United States. The city dweller, the town inhabitant, and the farm owner are now all agreed—except in a gradually lessening number of cases—that the common welfare demands an early improvement of the road arteries of travel.

In order to avoid the insinuation that he was working for good roads so that he might have perfect highways over which to drive his automobile, the motorist has pursued a policy of keeping very much in the background. Perhaps this plan may have been a wise one before automobilists became as numerous and substantial as they are to-day, but the impression is growing that the time is at hand when this large class of taxpayers—and nearly every automobilist is a taxpayer—should come out in the open and fight for that which not only benefits them, but is an advantage to all users of the highway, and to thousands of others who benefit indirectly.

The cyclist never hid in the underbrush in his persistent advocacy of good roads, and he talked the subject from morning until night, and unquestionably accomplished much in the way of moulding opinion to its present almost unanimous state. It is time for the thousands of automobilists throughout the broad land to place themselves squarely on record and announce in no uncertain manner that they intend to leave no stone unturned to bring about this prompt improvement of roads—the ignoring of which has been a matter of profound surprise to foreign countries who have studied our progress and prosperity.

The Brownlow-Lattimer good roads bills still slumber in Congress, and apparently are sidetracked for measures involving money expenditures in which the politicians have a greater interest. Our representatives in Congress must be taught that the good roads subject must not be longer ignored, and the only way in which this can be more quickly accomplished is for the growing army of automobilists to make their fight open and aboveboard, and not skulk in the background, fearing that their support will prove detrimental. Simply because a few reckless automobilists antagonize other users of the road is no reason why the great majority should hide their efforts in this most essential channel.

Government aid is close at hand, but it will not be obtained speedily through the methods now being pursued by automobilists. Let us not be ashamed of admitting that we do desire good roads over which to drive our automobiles, for this improvement of the highways, to quote from a Brownlow-Lattimer argument, "is a national obligation, because improved highways would bring national blessings where now exist conditions that are hurtful to national life and prosperity."

Patent Law Reform.

Several years ago, as the result of agitation on the subject, a bill was presented to Congress, having for its purpose the creation of a "Court of Patent Appeal" in which patent litigation involving serious technical questions would be conducted before a bench of scientific experts. The bill probably died in committee, for it has been lost sight of and forgotten. Recently, however, there has been a revival of the agitation under the leadership of E. P. THOMPSON, a New York patent attorney, and of LUDWIG GUTMANN, an electrical engineer of St. Louis. The aid of the technical press has been sought in furthering an intelligent discussion of the subject, and the *Electrical World and Engineer* has consented to receive correspondence on "Patent Law Reform" with the purpose of forwarding it to the Bureau of Commerce and Labor at Washington, or, if the correspondence is of sufficient volume, to use it as the basis of a memorial to Congress.

It will be generally conceded that reform

is needed in the patent law situation. As matters now stand, patent litigation is conducted in the United States courts before the regular judges, who, however able and impartial they may be in a legal sense, are not qualified by training or experience to give decisions in suits involving abstruse technical questions that would often puzzle the most expert engineer. It is not the intention of the agitators to override the existing courts. They suggest rather that the work of the courts be confined to questions of law, while the purely technical side of a dispute would be considered by an advisory board or lower court composed of men of reputation and thorough scientific training.

This, of course, is a mere outline of the plan of campaign, and those who are interested would further the cause by sending their views to the technical publication referred to at New York.

Needlessly Racing the Motor.

The breakdown of one of the finest racing cars at the recent Florida meeting suggested to an onlooker the thought, that, considering the abuse rather than the use of automobiles, it is a marvel of practical mechanics that their general reputation for reliability is so good to-day. Any car may fail from defective materials of construction, which may be employed unintentionally in its construction, no matter how careful the builder; for materials, especially the highest grades, have a knack of doing surprising things sometimes. But assuming the best—in all that the word signifies—in materials, they have been employed by the designer and constructor for use, not abuse.

The car referred to had been driven down to the start and was waiting to take its place at the line, with clutch open and the motor turning over idle. The driver, apparently in his anxiety to make sure that it functioned properly at even the highest speeds, pressed down the accelerator pedal at intervals, the powerful engine responding with a rapid-fire, ear-splitting roar. To paraphrase the famous remark of a French general: "It was beautiful, but it was not engineering." Once too often the accelerator was depressed and in an instant the motor was a wreck. Probably it had never occurred to the driver that the engine had been designed to do *useful work*, and that the factor of safety that would be sufficient to enable him to get under the weight and win a race was not sufficient to prevent disintegration when the potential energy of the machine was employed in that direction.

Until the advent of the automobile it was an unwritten rule in engineering practice never to race an engine. The more powerful the motor the more necessary this precaution. As a general proposition the driver who treats his motor with consideration will get a return in kind even though he may not get any articulate acknowledgment.

The Important Albany Highway Convention.

How the New York State Supervisors Will Recommend the Expenditure of the \$50,000,000 for Good Roads.

The report of the executive committee of the New York State Supervisors' Seventh Annual Highway Convention, to be held in Albany, April 3 and 4, is strongly and concisely drawn, and places clearly in front of the people what work has been accomplished by the highway conventions in the past six years, and upon what lines the executive committee recommend action at the present session of the Legislature.

Briefly, the report recommends that such legislation should be secured, that when the \$50,000,000 is expended the state of New York will have built, in such counties as desire it, all or a part of a complete county system which shall communicate with the adjoining counties, so as to make a complete state system capable of developing farm values and making the inaccessible parts of the state accessible for commercial purposes.

To accomplish this the committee recommends legislation which will enable the comptroller to sell, from time to time, bonds which shall not at any one time exceed \$50,000,000, using the proceeds to build highways in the respective counties as soon as and whenever the counties and state engineer are ready to construct them.

To secure an equitable distribution and a complete state and county system the committee recommends that the counties shall file in Albany maps showing the roads in each town desired to be improved by the town boards in each county, which roads so designated by the town board and board of supervisors shall be deemed by them to be proper for the complete internal improvement of their town and county, and for which the town and county pay respectively 35 per cent. and 15 per cent. of the cost in their respective counties and towns.

These roads so designated for improvement may be improved by the state engineer on behalf of the state, which pays the other one-half of the cost of construction if the state engineer believes such road so to be improved would make a proper part of a county system, also a proper part of a state system, and provided the improvement approved of does not make an inequitable apportionment to that county over the improvements to be equitably apportioned to other counties of the state. This plan the committee is submitting to all supervisors and highway commissioners prior to the meeting in Albany, in order that it may be thoroughly understood and approved or modified when the convention meets in April.

Road Work in Pennsylvania.

Since the Sproul-Roberts law went into effect in Pennsylvania about three years ago

more than 200 miles of public roads have been improved. At the first glance this may seem considerable, but, comparing it with the hundreds of miles of roads that criss-cross this great commonwealth, it is not so great. But the encouraging fact remains that the work is going on intelligently, and every mile of good road built encourages the construction of more.

According to the state highway commission, Pennsylvania has 97,940 miles of public road. This is exclusive of roads which are used by the public but are privately owned. It is also exclusive of 1,101 miles of toll roads, which, however, in a sense are improved, but are not all well maintained.

The appropriation of \$6,500,000 made by the state in conformity with the Sproul-Roberts bill is to cover a period of six years, various sums being released each year. For this year \$1,250,000 is available and for 1907 and 1908 \$1,500,000 each is set aside for road improvement. As the county and township must furnish their quota of cash, one-eighth of the total amount in each case, the annual total is considerable. The present fiscal year ends May 1, 1906, and applications have been received from the various counties for more mileage than the available cash on hand to that date will construct, showing that the interest of the rural population has at last been awakened to the lasting and diversified benefits derived from improved highways. Of the counties in Pennsylvania only five have not applied for state aid in road building. They are Bedford, Juniata, Jefferson, Schuylkill and Lebanon. Chester probably leads in mileage of improved roads, but Montgomery and Bucks are not far behind.

Since January 1, as automobilists residing in the Keystone state are aware, the highway commissioners have had charge of the issuing of automobile licenses and tags, and this department has been more than busy. During January alone more than 4,000 licenses were issued. Under the present law the operator, and not the car, is licensed.

Highway Progress.

State Highway Commissioner Earle, of Michigan, is having prepared a large number of supplements for country newspapers giving the laws relating to the construction of roads by state aid and other information to which it is desired to give wide publicity. The commissioner has on hand applications for state aid for roads aggregating \$67,300. There is available for this purpose not more than \$70,000, in addition to the money received from automobile licenses.

The Government of the United States has

built highways in Cuba, in Porto Rico and the Philippine Islands, and Congress is even now preparing to appropriate money to blaze the highways and establish means of communication in Alaska. But the astonishing fact remains that the Government has taken no substantial part in building highways at home, and helping the people who sustain it and furnish it the very sinews of existence as a government, although it is not forbidden by constitutional limitation or sound public policy from engaging in such internal improvement.

The good roads reform has struck Ottawa county, Michigan, and especially the portion of it surrounding Holland. Farmers through the surrounding territory are greatly interested in the movement and meetings all over the county are in prospect. At a meeting at the Brinkman school, near Graafschap, President Anthony Rosbach, of the Ottawa County Rural Carriers' Association, described the condition of the rural highways and told how they might be improved at a small cost. The use of King's split log drag was recommended for improving the roads. One of these can be made by any handy farmer, as there is no patent on the simple but effective contrivance, and if used on the roads directly after a rain it will level up the roads, fill in the cuts and keep the highway in excellent condition. The drag is made by splitting lengthwise a log 9 feet long 6 inches in diameter, the two sections being held together by pins 30 inches long, which give it the appearance of a ladder. It is the intention of the rural carriers to keep up the interest in good roads, and a number of meetings will be held to develop further interest.

FROM NEW YORK TO MICHIGAN.

From New York City to Lawton, Mich., is a journey that was taken last fall by C. D. Van Riper, who was accompanied by his wife, and incidentally carried along a dog which took a keen interest in the trip from start to finish. The 1,500-mile journey, including stop-overs, was accomplished in seven days by the 12-horsepower Franklin, which once covered 158 miles on seven gallons of gasoline.

From New York to Albany the rain made matters decidedly uncomfortable, but the fairly good roads made traveling comparatively uneventful. But from Albany to Utica the highway was of a decidedly doubtful sort. There was a slight improvement between Utica and Syracuse, and from the latter city to Rochester the going could have been improved upon very perceptibly. As a welcome change came the good road from Rochester to Buffalo, which also continued and even improved to Erie, Pa. Thenceforth to Michigan the roads alternated from good to fair and back again.

Not a single accident marred the trip, nor did Mr. Van Riper frighten any horses, and even the farmers gave him a welcome that showed how thoroughly their antipathy to the automobile is losing ground.

New Decauville Establishment in New York.

THE automobile industry has brought about a paradoxical use of the word "plant," heretofore used synonymously with "factory," and generally understood to mean a building or buildings devoted to the manufacture of a finished or partially finished product. However, "plant" is the only possible designation of the up-to-date combined salesroom, offices, repair shop and garage recently occupied by the Decauville Automobile Company, at the corner of Fifty-sixth street and Broadway, New York city.

The rapid growth of this concern, formerly known as the Standard Automobile Company, necessitated a radical move if the demands of the future were to be met, and the magnificent new building, now practically finished, was planned to house the several departments of the business. In order that the facilities for handling a great number of cars on storage might be of the best, a location was chosen that is particularly favorable to the arrangement of the plant in separate departments under one roof. The company considered it a prime requisite that the site should provide a corner frontage on Broadway and one of the cross streets near Columbus Circle, in the leading retail automobile district of the Western Hemisphere. The plot so situated has a frontage of fifty feet on Broadway and a depth of sixty feet on Fifty-sixth street.

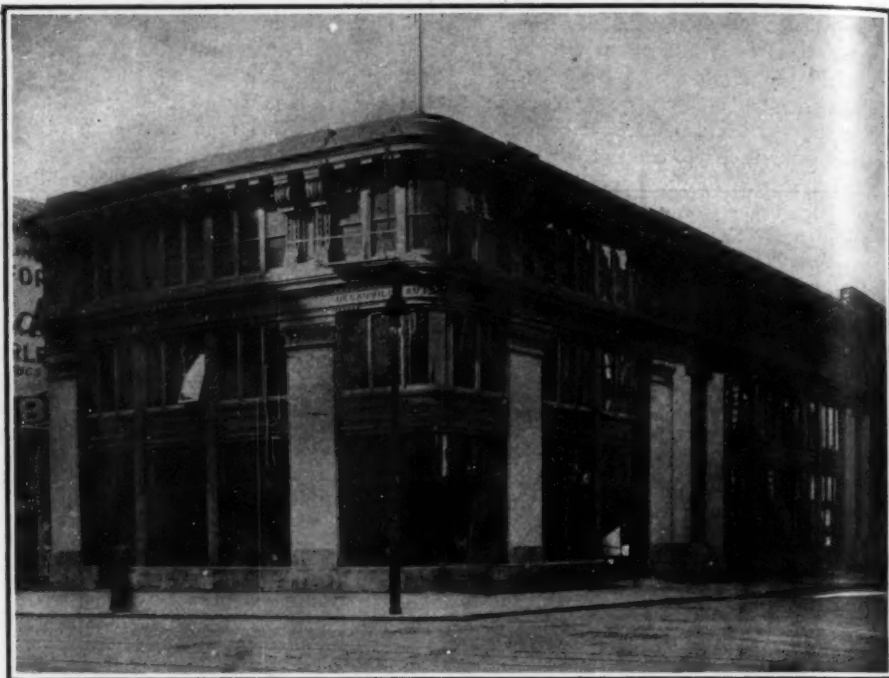
Directly in the rear, at right angles to the rear line of the lot, an adjoining lot was secured, which has a frontage of seventy-five feet each on Fifty-fifth and Fifty-sixth streets and a total depth of 200 feet, running entirely through the block and having

entrances to the garage and repair shop on both the north and south fronts.

Work on the construction of the buildings was begun about ten months ago and, in order that the company might take possession of the premises at the earliest possi-

larger plot, provision being made for the addition of one or more stories to the height of the larger building at any time in the future when the growth of the business of the company should demand more capacity in the departments devoted to storage and repairs.

With this in view, the construction decided upon was steel and concrete, the en-



FRONT OF THE DECAUVILLE AUTOMOBILE COMPANY'S NEW SALESROOM AND OFFICES ON BROADWAY AND 56TH STREET, NEW YORK.

ble moment, it was decided to erect only a three-story building on the corner lot and a two-story and basement building on the

tire building being so designed that the added weight of several stories will by no means test the strength of the foundations, side walls and sustaining columns. The floors and walls of the main building are of concrete with suitable steel tie rods and other structural steel work as demanded in the most approved modern fire-proof practice, wood being used only for such minor purposes as absolutely necessary in the proper installation of machinery and benches.

The salesroom occupies nearly the entire ground floor of the three-story wing and is advantageously located for the display of the various cars handled by the company. In addition to the Decauville line, the C. G. & V., English Daimler and Franklin gasoline cars and the Babcock electric carriages are handled, giving the concern a wide representation in the field of pleasure vehicles. On the same floor and in a mezzanine gallery are located the offices for the use of the retail sales department. Access to the garage is by way of a door opening directly on the main floor of the larger building. The general and executive offices of the company are located above the salesroom, being reached by a passenger elevator and a fireproof stairway.

The executive offices are arranged en suite on the Fifty-sixth street and Broad-



INTERIOR OF SALESROOM ON GROUND FLOOR, SHOWING GALLERY (AT LEFT) TO OFFICES.

way fronts, and, while fitted up in the best of taste, are in no way pretentious. Separate offices are provided for each department, with a remarkably comprehensive equipment for the transaction of clerical work, filing of records and other details incidental to the management of the many branches of the company's business. At this writing the third floor of the corner wing is in the hands of the decorators and work is being pushed forward so that the entire available office capacity of this building may be put to use, to the relief of the somewhat congested condition of the floor now in service.

A basement extends under the two buildings, and is so divided that the main floor is unencumbered with such departments as can be advantageously located in the basement. The heating plant, consisting of a battery of two boilers with large coal bunkers, is located under the salesroom, and the floor under the main building is about equally divided between the washing and cleaning department and a large room for the care of electric vehicles, suitable charging panels, trucks for handling batteries and other appliances being installed for the up-keep of this type of car.



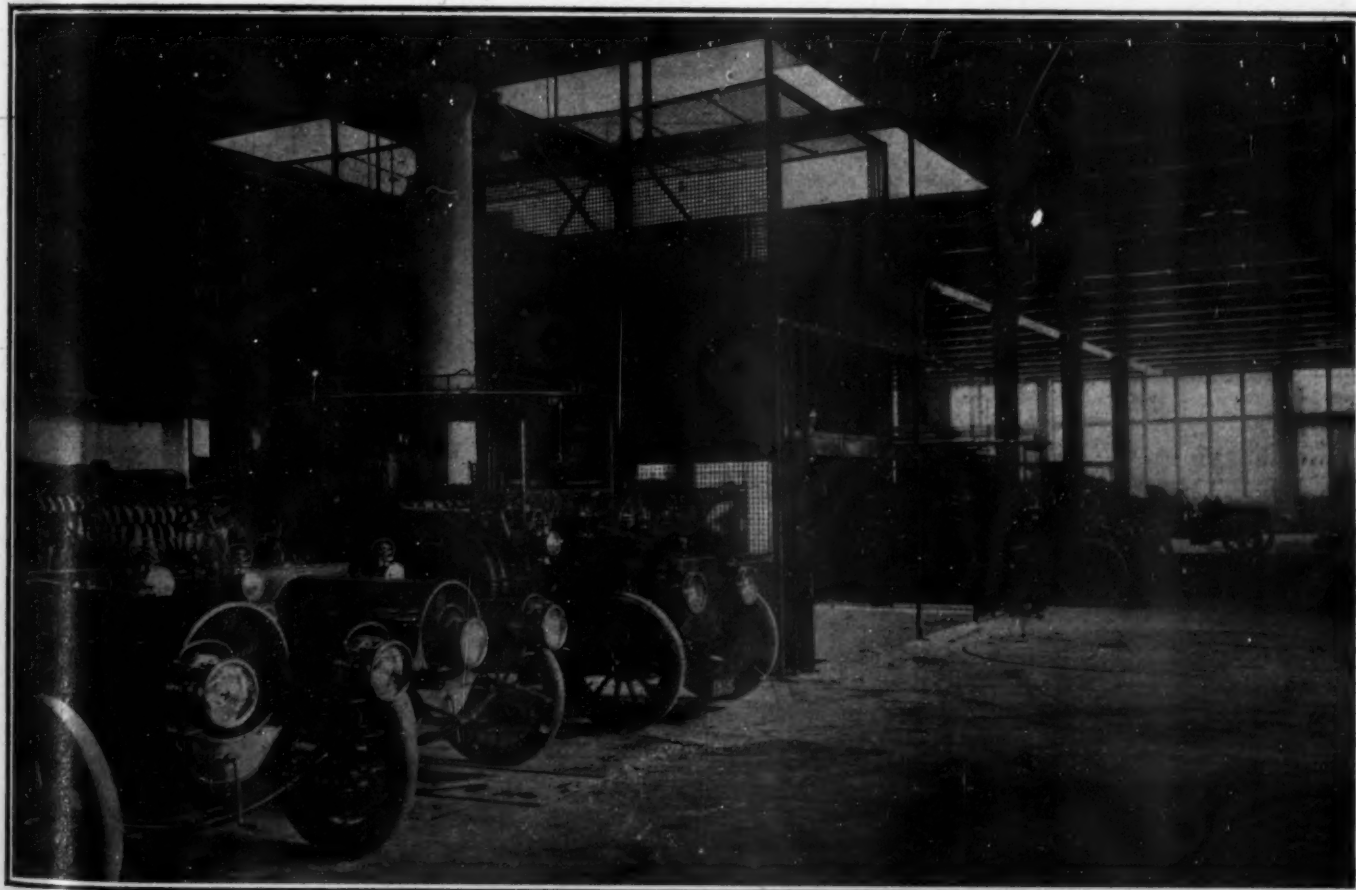
ONE END OF MACHINE SHOP IN REPAIR DEPARTMENT.

In the cleaning department the washing will be done on four large stands with ample light and convenient water connections

for quick and thorough work. The cars are carried to the basement floor by elevators, two of very large size being installed midway of the large building, with turntables at either side, affording ready access to each floor.

The available floor space of the garage has not been diminished by locating the locker department on the ground floor. The lockers have been placed on a gallery with communicating stairways at several points. There will be nearly 200 of these, all constructed of metal, each thirty inches deep and sixteen inches wide. The walls of the garage are covered with white glazed tiles, a part of the scheme to maintain as clean and light a garage as possible. Other appointments are in keeping with this idea and the company is directing special efforts to earn the reputation of maintaining the cleanest garage in the world.

The necessary supporting columns of the structure are nine in number, intersecting the short axis of the larger building so that two wide aisles are provided. Each aisle accommodates four rows of cars, and the handling of machines is as unobstructed as though no columns existed. The main entrance and exit is located on the Fifty-sixth street front, with emer-



INTERIOR OF GARAGE PROPER OF NEW DECAUVILLE ESTABLISHMENT, SHOWING TWIN FREIGHT ELEVATORS WITH TURNTABLE IN FRONT.

agency doors on Fifty-fifth street. A comprehensive checking system is maintained at this entrance, each car being checked on arrival or departure in such a way that a complete record of its movements is preserved in duplicate for the owner and the company.

The second floor, reached by four iron and steel stairways and the two large elevators, is divided into a number of departments, chief of which is the extensive repair shop, in which is installed a double line of the most approved machines for the repair or manufacture of any part of the mechanism of the up-to-date automobile. Adjacent to the machine shop is the forge and brazing rooms, each a closed apartment, absolutely fireproof and cut off from all communication with the remainder of the building except by a single-entrance door.

On this floor is a large space set apart for the use of chauffeurs and owners who may wish to effect adjustments, repairs or replacements; and, with a view to affording the best possible facilities, the department is provided with ample light and sufficient bench room for the accommodation of a considerable number working at the same time. Just off this large room are shower baths and lavatories with lockers for the use of chauffeurs, similar accommodations for employees of the company being located near by.

A number of stockrooms, for machine tools and sundries and for car parts, are located on this floor in suitable proximity to the machine shop and communicating passageways. Access to each department of the building is facilitated by numerous all-metal stairways disposed at frequent intervals.

Midway of the length of the garage, on a piece of land twenty-five feet wide by

seventy feet deep, is the accessories department in a separate building that opens into the middle of the garage. At the rear of this building is a large checkroom for robes and bulky articles which cannot be put into lockers.

All gasoline and oils are stored in tanks set below the ground and filled from the outside of the building on the Fifty-fifth street front. Two rooms are located in one corner of the garage, one for gasoline and the other for oils. Each is fitted with registering pumps and the interior walls and floors are lined with white tiles. The gasoline is delivered to cars from a wheeled tank of fifty gallons' capacity, a measuring pump on the tank indicating the exact amount used. In the oilroom no less than six pumps are installed for various grades of lubricating oils and kerosene.

Garage Record System.

The large number of cars handled regularly in the big garages in New York City requires the keeping of a complete record of all work done on each car, and of the coming and going of each machine. While the systems differ somewhat in details, the result in all is practically the same, and the system in use at the new Smith & Mabley establishment on Broadway will serve as an excellent example. Garage keepers in smaller cities may gather some useful ideas from it.

For every car regularly kept in "live" storage a record card like that reproduced herewith is filled out each week, the date, names of owner, chauffeur and car and the registered number being filled in at the beginning of the garage week, which is on Friday. Every time the car leaves and returns to the garage during the succeeding

seven days the time is recorded in the proper blank space, provision being made on the card for three departures and re-

SMITH & MABLEY INC.						
GARAGE						
NEW YORK CITY						
Form 514						
WEEK ENDING 190...						
OWNER						
CHAUFFEUR						
CAR						
REG. NO.						
DAY	1	2	3	4	5	6
	OUT	IN	OUT	IN	OUT	IN
F						
S						
S						
M						
T						
W						
T						

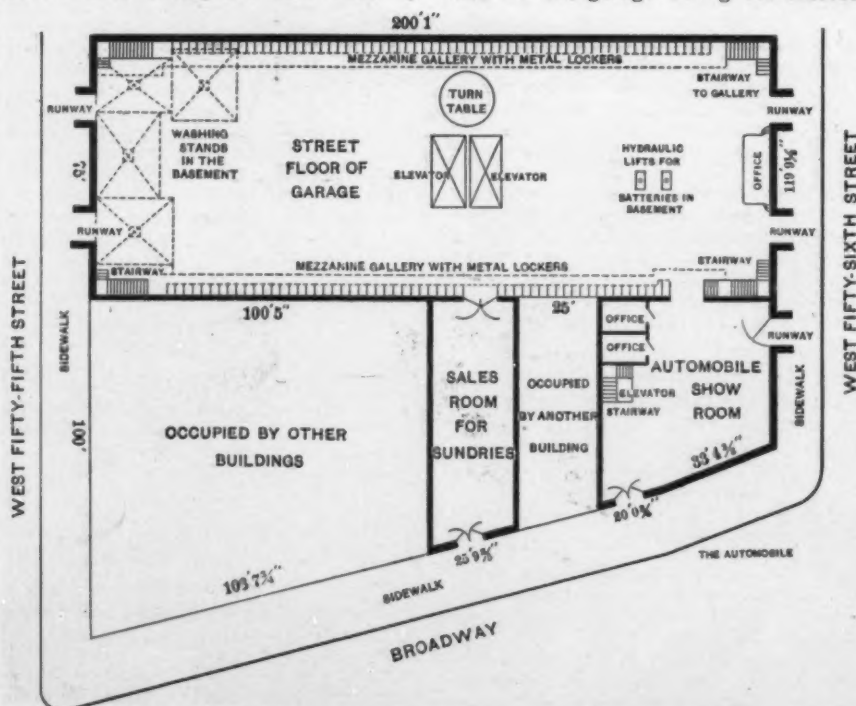
CARD FOR RECORDING ARRIVAL AND DEPARTURE OF CARS.

turns each day. As the car goes out and comes in it is checked and the time is registered at the door by a recording clock. The record card is kept in the garage office until the end of the week, when a duplicate is mailed to the owner of the car if desired and the original is filed away for preservation.

There is also a special card for use in the washing department. As soon as a car comes into the garage one of these tags is tied to the steering wheel, with the name of the owner written in the second line; the robes and automobile clothing left in the car are placed in a locker under key and the number of the locker is entered in the first line on the tag. In the upper right corner is written the hour at which the car is to be ready for use again, and in the lower left corner is written the date.

Every workman in the establishment is known by a number, and the number of each man who assists in washing and polishing or in cleaning the machinery is entered on the tag, which is then signed by the man who inspects the work and checks the car as ready for the road once more.

A very similar record system prevails in the repair shop, so that the management has a permanent complete record of every man who touched a tool to the car, the time spent on the job and the nature of the work.



PLAN OF NEW DECAUVILLE GARAGE, SHOWING MAIN FLOOR ARRANGEMENT, AND WASHING STANDS AND BATTERY LIFTS IN BASEMENT.

THE GROWING GARAGE LIST.

A first-class garage and salesroom, 27 by 90 feet, will be opened about March 15 in Pottstown, Pa., at 18 South Hanover Street, by the Pottstown Automobile Exchange. A full stock of automobile sundries and supplies will be carried.

Graham & Goodman, Inc., have just completed and occupied a new fireproof garage at 51-55 West Ninety-third street, New York City, convenient to subway, elevated and surface lines of transportation. The garage contains every accessory for the convenience of car owners and their servants and chauffeurs.

Contract for the construction of a two-story brick building, 25 by 75 feet, on Green avenue, Altoona, Pa., has been let by Messrs. R. A. Rohrer and G. C. Epplenman. The building is to be occupied in about two months by the Altoona Motor Car Co., which will conduct a garage and repair business. Automobile supplies and sundries of all kinds will be carried in stock, and the establishment will be equipped in the most up-to-date manner for the convenience of patrons and to facilitate work.

W. E. Weaver, agent for the Maxwell cars in Portsmouth, N. H., is about to open a garage near the corner of Fleet and Congress streets, that city. The interior of the building, which was formerly a carriage house attached to the livery stable adjoining, has undergone extensive alterations, involving considerable outlay. The garage will afford accommodations for from thirty to forty automobiles, and will have up-to-date facilities for stabling, repairing, selling and renting cars. The building has been leased for a term of five years.

One of the most complete garages in Michigan was recently completed in Bay City for F. H. Fenner, who is local agent for the Winton and Cadillac. The garage was designed after study of many garages throughout the country. Among its special features are a very wide entrance and fireproof construction, the material being steel, cement, brick and concrete for floors. There are 7,500 square feet of floor space, affording storage for fifty cars.

At Marysville, Cal., one of the best equipped garages in the state north of San Francisco, has just been completed by W. B. Grow. It is 60 by 82 feet in size and is of fire-proof construction. Mr. Grow is agent for Olds and Winton cars and carries a line of sundries and supplies in addition to conducting a repair shop.

In Seabreeze, Florida, on the boulevard leading from Daytona to the Ormond-Daytona Beach, Messrs. Egan & Grinnell conduct what they assert is the largest garage in the state of Florida and the best equipped repair shop south of New York. This shop has lathes capable of boring cylinders and taking crankshafts for straightening, a 16-inch stroke shaper, milling machines, a large drill press and several smaller drills, emery grinders, forges, anvils, vulcanizers

and other equipment. A large stock of accessories and supplies is carried. The garage is 150 by 75 feet in size and has private stalls 12 by 20 feet, entirely enclosed and fitted with work bench equipped with a few common tools. There are facilities for charging electric vehicles, and in connection with the garage the proprietors maintain a small hotel with seventy-five rooms and accommodations for chauffeurs. On the Halifax river near by they also maintain a boat-house equipped for the care and repair of gasoline launches.

BALTIMORE TRADE DOINGS.

Baltimore, Md., Feb. 26.—This city undoubtedly has the automobile fever in a pronounced form. A couple of months ago there were only fourteen cars represented here, and now there are over thirty, with more coming.

The Mt. Royal Garage, Mt. Royal and Maryland avenues, Baltimore, built by the George A. Fuller Company for the Motor Car Company, has recently been opened. The building will be used as a salesroom and garage and will be kept open day and night. The company claims that it covers more ground floor space than any other establishment of the kind in the country, and its equipment is thorough and up-to-date in every particular. The structure is fire-proof—steel construction being used throughout, and there are few posts. All cars are stored on the first floor and a numbered space is allotted to each. A specially designed floor arrangement makes possible the washing of a car where it stands. A repair shop is located in the rear of the building. There are waiting and reading rooms on the second floor, and quarters have been provided for chauffeurs, so that a driver may be reached for immediate service.

The Members of the Motor Car Company are Howard W. Gill and Arthur Stanley Zell, two well-known young men of Baltimore. They are the local agents for the Peerless, Thomas, Stevens-Duryea, Stanley steamer, and Baker electric. They have a branch in Washington, where they handle the Peerless and the Stevens. Prior to moving into their new home they occupied a stone church on Park avenue and Biddle street. A feature of the new building is the electric lighting on the exterior. Incandescent lamps are strung from corner to corner of the front and in the center arch over the main entrance.

The Motor Carriage Company, a new concern, has been incorporated in Baltimore, the incorporators being G. F. Bucholz, James Caldwell, W. C. Hood, and Messrs. Benzinger and Collier. The capital will be \$10,000, and the company will represent the Winton, and the Pope-Hartford, and Pope-Tribune lines.

CHICAGO TRADE NOTES.

Chicago, March 5.—Charles A. Coey had a number of automobile liverymen at luncheon at the Chicago Automobile Club last Thursday. The subject discussed was the organization of allied interests among those who rent machines.

The Motor Car Company, 1427 Michigan avenue, has closed a deal with R. L. Kingston, the United States representative of the Harburg Tire Company, to act as Chicago representatives of that firm.

Fred P. Brand, manager of the local Aperson branch, has resigned to accept the position of assistant general sales manager and traveling representative of the Autocar Company.

PHILADELPHIA TRADE MATTERS.

Philadelphia, March 5.—The result of the show will be the addition to the membership of the Philadelphia Automobile Trade Association of almost every dealer and repairman not already a member.

The Knox Automobile Co., of 202 North Broad street, Philadelphia, has secured the agency for the Blakeslee electric for eastern Pennsylvania and southern New Jersey. A. F. Clark, the electrical man of the Knox concern, has been building electric vehicles for years, having designed and constructed one of the first successful commercial wagons of that type ever operated in the East, some of which are still in service. The Knox concern is also representing the Logan gasolines, and is about to demonstrate for a big department store, which proposes to do away with its horse delivery if the test is successful.

Besides the Rainier branch soon to be located in Philadelphia, the Leon Bollee car is soon to be represented there by an agent.

John N. Reeve, a Philadelphian, has secured the Maxwell agency for Cape May and Cumberland counties, N. J., and has started the Wildwood Auto Co., at Wildwood, N. J., with a sub-agency at Millville in charge of Harry Murphy. He will run an automobile line to Cape May during the months of June, July and August.

The Studebaker exhibit was installed in high-priced quarters during the show. It appears that Titman, Leeds & Co., the new local agents, were appointed after the former representatives, the La Roche Automobile Company, had bought and paid for two \$200 spaces. The week before the show Mr. La Roche was offered \$400 each for the two spaces by an outside concern, but his loyalty to the Studebaker prevailed, and he disposed of his holdings to the new agents for a bonus of \$350 over and above the original cost.

WILL DEVELOP HOME TRADE.

Indianapolis, March 5.—Local manufacturers are expecting to get their full share of local business this year if every possible effort will do it. Hitherto they have not been as well represented as they are this year, and for that reason out-of-town makers have secured a good share of the business. A list of cars owned in the city has just been compiled from the 1905 license list, and of 352 cars registered it is shown that 124 of them are machines made in this city. This cannot be taken as accurate, however, as it is estimated that fully 200 cars were not registered in Indianapolis last year.

The 1906 license tags are now ready, but as yet there has been little demand for them. Only about twelve owners have taken out the tags since January 1, but the police show no desire to compel owners to obtain them.

The Buick line will be carried by the Federal Motor Car Company in Indianapolis, that company having recently obtained the agency for the cars. In addition to Buick, the company will carry a line of Stevens-Duryea cars.

F. H. Wheeler, of Indianapolis, A. E. Spiegel, of Shelbyville, and W. E. Morris, of Liberty, have purchased Stoddard-Dayton cars through the Fisher Automobile Company, Indiana agents for that line.

The New York Court of Appeals at Albany has confirmed the decision of the Court of Special Sessions of New York City against E. R. Thomas, the prominent automobilist, who was fined \$25 for violating the speed ordinance last spring. The case attracted much interest among automobilists, Mr. Thomas claiming that his arrest and conviction were unjustified.

News and Trade Miscellany.

One of the most enthusiastic motor car drivers of Indianapolis, Ind., is E. B. Hanna, an engineer on the New York Central lines, Cleveland division. Mr. Hanna is engineer on a fast passenger train, and recently established a new record for the division, running thirty miles in twenty-seven minutes with a small-type engine that hitherto has not been noted for unusual speed. For two seasons Mr. Hanna has driven a Rambler car and after making a long, hard run with his train, frequently spends several hours in his automobile. Excepting in case of tire troubles, he repairs his car himself and thoroughly understands its machinery, just as he does the machinery of the engines he has run for nearly thirty years.

An Indiana town, Napanee, lays claim to owning more automobiles in proportion to its population than does any other town in the state. With a population of 2,500, it is said the number of automobiles owned will average one for every 100 population. The town is located in a wealthy farming section and is one of the most up-to-date little towns in Indiana.

The Cleveland Cycle & Auto Co., of Buffalo, N. Y., has filed notice in the office of the county clerk that it has decided to increase its capital stock from \$2,500 to \$5,000.

One of the largest individual shipments of automobiles on record was a solid train of seventeen cars dispatched from the Kenosha, Wis., factory of Thos. B. Jeffery & Co., on February 25, to the San Francisco agent of the company. The shipment contains fifty-two Rambler cars of the surrey Type 1 model, fourteen surreys Type 3, and one surrey Type 2. The shipment is not to be broken up at San Francisco and parceled out to sub-agencies throughout the Pacific Coast, but is for direct disposition in 'Frisco. Freight charges alone on this shipment aggregate \$6,630.

Although a large addition to its plant was but recently completed and occupied, the Timken Roller Bearing Axle Co., of Akron, O., finds it necessary to increase its facilities, and to this end has just closed contracts for buildings and machinery that will more than double the present capacity. The company has secured the services of H. W. Alden, formerly of the Electric Vehicle Co., and late of the Pope Mfg. Co., where he was in charge of the commercial truck department. Mr. Alden brings to the Timken engineering department a wide experience.

A school for practical instruction in the use and care of automobiles and in the theory and practice of design, construction and operation, has been opened in Portland, Me., by the H. J. Willard Co., Inc. The company, which is also state agent for the Packard, Peerless, Franklin, Winton, Cadillac and Buick cars, reports that it is meeting with success in its automobile school undertaking.

The factory of the Gearless Transmission Company has been removed from Glens Falls, N. Y., to Rochester, N. Y., where the company has better manufacturing facilities.

W. W. Burke, manager of the New York branch of the Electric Vehicle Co., said recently that one of the results of the New York show appeared to be a sudden increase of interest in the subject of commercial vehicles. He said that he had already received a number of orders and expected to close within a few days several important deals in trucks and delivery wagons as a direct result of the company's exhibit at

Madison Square Garden. Mr. Burke also remarked upon the growing tendency of New Yorkers who owned gasoline cars to also keep electric broughams or landaulets for city use. While a great many gasoline cars with closed bodies are in use for what might be strictly called town carriage service, the special advantages of electrics for this use is receiving increased recognition each season.

Souvenir postal cards, showing Dr. H. E. Thomas's Locomobile in the last Vanderbilt cup race, with Joseph Tracy at the wheel, will be mailed to any address in sets of one dozen for 12 cents in postage stamps, by the Locomobile Company of America, Bridgeport, Conn. The views are similar to the large lithographed colored posters, 20 by 24 inches, suitable for framing, which the company offers to mail for 10 cents in stamps. All the pictures on the postal cards are from photographs selected to show as many points of interest around the racecourse as possible.

Management of the National Sales Corporation, 256 Broadway, New York, passed into the hands of Joseph Grossman on February 26, succeeding E. J. Kuegeman, who has held that position during the past few months. Mr. Grossman has been connected with the Continental Caoutchouc Co. during the past fifteen months in the capacity of advertising manager and purchasing agent. The Sales company is exclusive selling agent for Soot-Proof plugs, Connecticut coils, plug switches and meters, Dodge lubricators and timers and Geece batteries.

Among the numerous tests to which the Wayne car will be put this spring are the six-day non-stop run in the streets of New York, to be started as soon as the weather clears, the sprint races at Atlantic City during Easter week, and the Wilkesbarre hill climb in April, to be managed by W. J. Morgan. The six-day non-stop run will be the first ever engineered in New York City on the streets and will be run to conform with the rules of the city as regards speed.

President H. S. Firestone entertained thirty-seven employees of the Firestone Tire & Rubber Co., of Akron, O., at a banquet in the Hollenden Hotel, Cleveland, on February 22. Tables and walls were appropriately decorated to commemorate Washington's birthday. In one of the toasts President Firestone said: "It is not hard for me to understand, in looking over this assemblage, why more than 85 per cent. of all the commercial automobiles operated in America are equipped with Firestone tires." After the dinner the entire party visited the automobile show in Central Armory.

Benjamin Briscoe, president of the Maxwell-Briscoe Motor Company, of Tarrytown, N. Y., has come forward with a plan for running the Glidden tour, or at least a portion of it, from Buffalo to Detroit by way of Canada. Mr. Briscoe says that if the tour must go through Canada the roads in the section he has indicated are much better than those in the route projected tentatively by the A. A. A. touring committee last fall from Buffalo to Montreal.

As proof of the efficiency and non-sooting qualities of its Comet spark plugs, the Oakes & Dow Co., 40 Sudbury street, Boston, has issued a circular calling attention to the fact that the Haynes car used in the last Vanderbilt Cup race, the National car that broke the 24-hour record on the track at Indianapolis in November, and the Moline car that won first prize in the Denver economy and endurance test in September, were each fitted

with a set of four Comet plugs. It will be remembered that the performances of all these cars were remarkable for their uniformity as well as for the speed maintained.

The Aerocar Company of New York has been formed to handle the Aerocars in that city. A fine large showroom has been opened at Seventy-third street and Broadway, with a big frontage on both streets. A large electric sign visible for a mile each way gives extra emphasis to the location, which is in the great automobile row of the metropolis.

Fifty-eight per cent. of the wheels in the recent Berlin Automobile Show were fitted with Continental tires, according to figures compiled for the Continental Caoutchouc Company. Out of a total of 1,469 wheels 862 were fitted with Continentals.

Manager Archer, of Archer & Co., New York agents for the Hotchkiss cars, made by the famous gun makers of France, has already delivered fifteen cars in the Eastern market, and so steady has been the demand that he has secured forty more cars through cabling to agents all over Europe.

The English Daimler car is being used for a great many long winter trips by Messrs. Demar & Hardy, of the English Daimler Co., having traveled to Philadelphia and Boston frequently this winter. The Daimler has gained popularity in America already, having been placed with a number of prominent people.

A large shipment of Harburg tires is expected April 1, when the new Harburg tire depot, on West Fifty-eighth street, near Broadway, New York, will be open and ready for business. Manager Kingston has secured a number of orders, and, although without stock for a short time, is placing orders for future delivery.

Many representative automobile dealers throughout the United States have decided to handle the Pope-Waverley electrics for 1906, for the reason that this line is particularly strong for the coming season, embracing several new models and showing a total of more than fifteen distinct styles, including runabouts, station wagons, surreys, chelseas, stanhopes, light delivery wagons and trucks of various capacity.

At a meeting of the stockholders of the Salisbury Wheel & Mfg. Co., of Jamestown, N. Y., held February 20, it was voted to increase the capital stock from \$50,000 to \$100,000. A large addition to the factory will be built the coming spring and more machinery added. The factory has been running twenty-two hours a day for the past three months and will be obliged to continue at this rate until July 1, at least, to complete orders on hand.

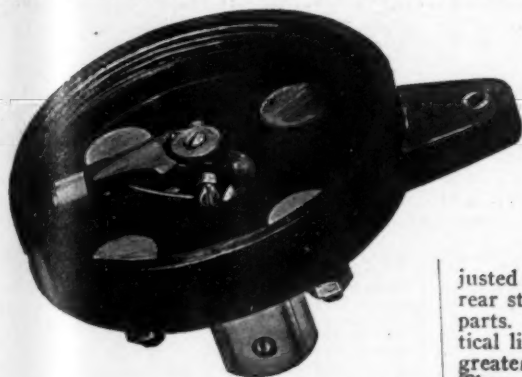
The Frevert Machinery Co. has opened a salesroom and offices at 18 Dey street, New York City, where it carries a complete line of new and second-hand metal-working tools and machinery of every description. It is also manufacturing a line of newly designed hand-power traveling cranes, trolleys, hoists and overhead trucks, which combine many improvements and new features. H. F. Frevert, the principal of the company, has had a wide experience in the machine tool business.

W. W. Taxis, formerly manager of the Philadelphia branch of the Ford Motor Company, has established an agency for the sale of automobile parts in the Odd Fellows' Temple, Broad and Cherry streets.

In a description of the Kilgore shock eliminator recently published in these pages, the statement was made that the "cushions" were sufficiently lubricated for 1,000 miles' driving, whereas this should have read 10,000 miles. The misstatement was caused by a typographical error.

INFORMATION FOR BUYERS.

DODGE TIMER.—A timer has been placed on the market by the Dodge Lubricator Company, 36 Columbus avenue, Boston, Mass., with a view of meeting the demand for a simple instrument made of the best materials throughout. The Dodge positive



DODGE POSITIVE TIMER, SHOWING ROTATING ARM AND CONTACT PLATES.

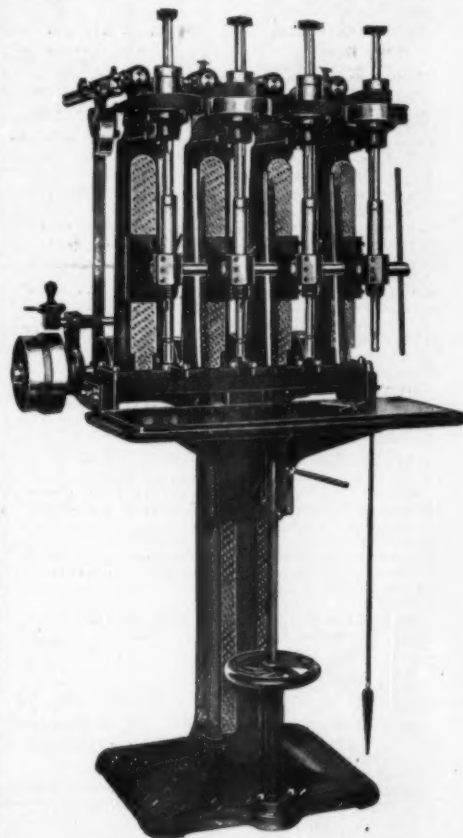
timer, as it is called, consists of a fiber shell, containing the contacts, and a shaft and arm rotating in the shell. The shaft runs in an accurately finished phosphor bronze bearing. The arm is pivoted to the end of the shaft inside the shell so that it can move up and down with relation to the contact points in the shell; a hardened steel roller running on a hardened steel pin on the end of the arm makes the contacts as it sweeps around, being pressed against the contact points by a spring of adjustable tension. As the roller is of the same diameter from end to end, and rolls on a path which makes it necessary for the outer end of the roller to travel a greater distance each time the shaft revolves than the inner end, there is necessarily a small amount of slipping or "wiping" which keeps the surfaces clean and insures good electrical contact. The manufacturers state that the fiber of which the case or shell is made is a special quality which will withstand 500 volts per 1-8 inch of thickness and will stand a heat of 350 to 400 degrees. The cover is of the same fiber as the shell and screws in place.

STEERING KNUCKLES AND AXLES.—The Diamond Chain & Mfg. Co., of Indianapolis, has decided to extend its business in the direction of making automobile parts and automatic machinery. A very large

machine department will permit the company to take on a few staples, as well as to manufacture automobile parts from individual specifications. Exclusive selling arrangements have been made with Hayden Eames, Cleveland, O., to market this part of the Diamond product. The first staple the Diamond company offers is the Diamond I-beam axle and steering knuckle, made under the Lindsay patents. The I-beam of special section is rolled straight from one piece of stock, in either 50-carbon stock or chrome nickel steel, eliminating welds and brazed joints. The forgings of yokes and spindle are simple and the factor of safety is large. Steering arms can be adjusted to suit any desired coupling—front or rear steerer or right or left—with the same parts. Yoke bearings hold the wheel in vertical line, and the T-shaped spindle gives a greater bearing surface than other methods. The spring seat is adjustable to any desired position; is strong, rigid, and will not flatten from action of the spring. The entire axle permits of lighter construction and has been designed for safety, strength and long life. It is adapted for cars of light weight, and is particularly recommended for touring cars and trucks. The axles will be equipped with hubs of special design, fitted with ball or roller bearings. The Diamond Chain Company, through Hayden Eames, is also prepared to make machine parts on contract.

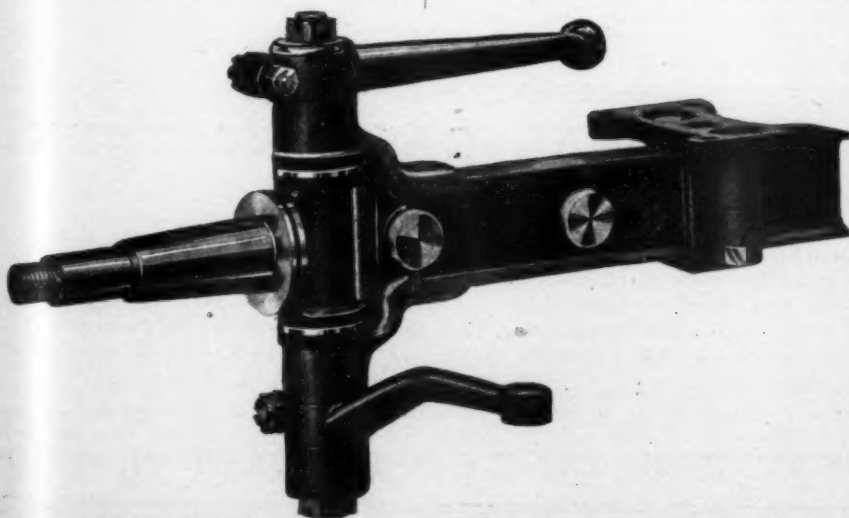
DRILL PRESSES.—The advent of the automobile may be said truthfully to be one of the greatest factors in bringing about the remarkable advance in machine tool construction and development that has been going on for the past decade. As one instance of this growth may be cited the sensitive drill press. For more than twenty-five years makers of this type of machine have been making practically the same type of machine. The new Henry & Wright ball-bearing drill, which was first placed on the market two years ago, showed such decided advantages that it met with immediate favor. The makers, the Henry & Wright Manufacturing Company, 115-133 Sheldon street, Hartford, Conn., claim exceptional advantages for their machine and assert that these have been proved and attested by prominent manufacturers in all parts of the world. Among the causes contributing to the remarkable performances of these drills

are the following: Ball bearings of accurate construction have been introduced throughout the machine, hence the friction has been reduced to a minimum; the new idler system, by which four speeds can be obtained with two-step pulleys and one continuous cemented belt always kept at proper tension as against three speeds, with three



HENRY & WRIGHT SENSITIVE DRILL.

and four step pulleys and two laced belts requiring continuous relacing and attention; new spindle drive, new pinion handle and new, compact and stiff general construction. The illustration shows the 1906 Model A drill, which is the same as the Plain machine in every way except that it is equipped with a hand screw table-raising mechanism.

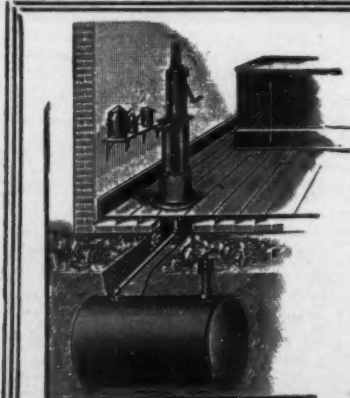


DIAMOND-LINDSAY I-BEAM ROLLED FRONT AXLE AND T-SHAPED STEERING KNUCKLE.

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THE NATIONAL GASOLINE TANKS

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